

Parallels[®] H-Sphere

Parallels H-Sphere 3.3 System Administrator Guide

Parallels H-Sphere 3.3

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ISBN: N/A

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Preface

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Typographical Conventions

Before you start using this guide, it is important to understand the documentation conventions used in it.

The following kinds of formatting in the text identify special information.

Formatting convention	Type of Information	Example
Special Bold	Items you must select, such as menu options, command buttons, or items in a list.	Go to the System tab.
	Titles of chapters, sections, and subsections.	Read the Basic Administration chapter.
<i>Italics</i>	Used to emphasize the importance of a point, to introduce a term or to designate a command line placeholder, which is to be replaced with a real name or value.	The system supports the so called <i>wildcard character</i> search.
Monospace	The names of commands, files, directories, and domain names.	The license file is located in the http://docs/common/licenses directory.

Preformatted	On-screen computer output in your command-line sessions; source code in XML, C++, or other programming languages.	<pre># ls -al /files total 14470</pre>
Preformatted Bold	What you type, contrasted with on-screen computer output.	<pre># cd /root/rpms/php</pre>
CAPITALS	Names of keys on the keyboard.	SHIFT, CTRL, ALT
KEY+KEY	Key combinations for which the user must press and hold down one key and then press another.	CTRL+P, ALT+F4

Feedback

If you have found a mistake in this guide, or if you have suggestions or ideas on how to improve this guide, please send your feedback using the online form at <http://www.parallels.com/en/support/usersdoc/>. Please include in your report the guide's title, chapter and section titles, and the fragment of text in which you have found an error.

CHAPTER 2


About This Guide

Welcome to the Parallels H-Sphere System Administrator Guide. It aims at system administrators and explains how to install, configure and maintain Parallels H-Sphere and its components.

Pre-configuration Wizard

This document explains how to shape your Parallels H-Sphere cluster, add boxes and hosting services and configure basic Parallels H-Sphere settings after Control Panel installation.

Welcome to the H-Sphere pre-configuration page. Please shape your H-Sphere cluster before you complete H-Sphere installation (update).

Configuration File					
Import		Export		Restore to Default	

General Settings		
System Domain		
Type of Installation	Multi Server	
Use NAT IP mapping	No	

Physical Servers				
ID	Name	Host IP	Type	Controls

Parallels H-Sphere Pre-Configuration Wizard writes the cluster configuration into the specially formatted `config.xml` file (download sample `config.xml` from <http://hsphere.parallels.com/HSdocumentation/xmldata/config.xml>). The **Configuration File** form on the main page enables you to:

- **Import:** You upload the prepared XML file from a local machine to Parallels H-Sphere and later reconfigure Parallels H-Sphere in the wizard.
 - **Export:** export `config.xml` with your Parallels H-Sphere cluster configuration to your local machine.
 - **Restore to Default:** choose this option to recreate `config.xml` and to restart configuring Parallels H-Sphere cluster in the wizard.
- **To complete the pre-configuration wizard:**
- 1 Click the **Edit General Settings** icon on the right corner of the **General Settings** caption and fill in the data on the page that appears:
 - **System Domain:** Specify the service domain name here.
 - **One Server Installation:** check this box if you need a single server installation.
 - **Use NAT IP mapping:** Check this box if you implement NAT (on page 28) on your Parallels H-Sphere.

Press **Submit** and return to the main page of the wizard.

- 2 If you choose multiple server installation mode, you will see the **Add Physical Server** icon on the right corner of the **Physical Servers** caption. Click this icon and proceed to the form for adding new physical servers and services.

Here you set physical server name, IP, root password to connect to, and choose which hosting services (CP, Web, mail, DNS, MySQL, PostgreSQL) will be installed there.

Note: At the moment, VPS, Windows, MRTG are not installed via Parallels H-Sphere pre-configuration wizard.

Choose **Use defaults for this server** to apply default names for Parallels H-Sphere logical servers on this server. By default, they are named webN, mailN, nsN, mailN, mysqlN, respectively.

- 3 After you have added physical servers into Parallels H-Sphere cluster, you will see them on the main page of the wizard.

Click the **Edit** icon in front of a physical server in the list and edit logical server parameters. More on Logical Servers read in Parallels H-Sphere Service Administrator Guide.

- 4 After you have done with Parallels H-Sphere configuration, press **Proceed Installation Wizard**.

- 5 You will be taken to the **Confirm Installation** page. To complete installation via CP web interface, click **Yes, continue**

- 6 On the page that appears check the servers you want to be updated/installed and click **Start**.

To see the update log, click the server name link.

- 7 When update is finished and the light turns green, click **Proceed** to complete installation.

- 8 On the page that appears, click **Return to Admin CP**.

You will be taken to the administrator control panel where you can maintain your hosting business.

In this chapter:

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Parallels H-Sphere config.xml

The config.xml file is used in Parallels H-Sphere Pre-configuration Wizard (on page 15). It contains Parallels H-Sphere cluster configuration: physical servers with their IPs and root passwords to install Parallels H-Sphere to, and logical servers to be installed on these boxes.

During regular Parallels H-Sphere installation, config.xml is formed in Parallels H-Sphere Pre-Configuration wizard in admin CP and is temporarily stored in the `~cpanel/.settings` directory. After completing Parallels H-Sphere installation in the `postinstall` mode, installer removes this file. However, the `postinstall` mode won't continue if config.xml is missing or is different from the one used at the installation.

When installer runs in the `install` mode, it is required that you specify location of the correctly formed config.xml. See Appendix B. Installation Script Options of Parallels H-Sphere Control Panel Installation Guide.

Elements and Attributes

In the following chart `xml` elements are marked in **bold** and their attributes -- in *italics*.

physicalServers - a list of Parallels H-Sphere physical servers, each of them described as **physicalServer** with attributes:

- *id* - id of the physical server
- *name* - name of the physical server

password - root password to the physical server Each **physicalServer** contains **ip** and **logicalServers** elements:

- **ip** - server IP with attribute:
 - *type* - type of the physical server

Element **ip** contains such child elements:

- **addr** - IP address
- **ipExt** - external IP for NAT mapping

Note: If Parallels H-Sphere does not use NAT, this child element is redundant.

- **mask** - IP mask
- **logicalServers** - a list of Parallels H-Sphere logical servers each of them described as **logicalServer** with attributes:
 - *group* - group of the logical server
 - *id* - id of the logical server
 - *name* - name of the logical server

Each **logicalServer** element contains **ips** element - a list of IPs, each of them described as **ip** with the following child elements:

- **addr** - IP address
- **ipExt** - external IP for NAT mapping

Note: If Parallels H-Sphere does not use NAT this child element is redundant.

- **mask** - IP mask

systemzone - a Parallels H-Sphere DNS zone

hsversion - a Parallels H-Sphere version

CHAPTER 4

Software Used in Parallels H-Sphere

This chapter lists various types of software used in Parallels H-Sphere.

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Integrated Third Party Products

Even though we integrate or use the below products in Parallels H-Sphere, we do not assume any responsibility for bugs in their source code. Should you have any problems with these products, please contact the developers. The packages are listed in the alphabetical order.

BS Counter <http://www.stanback.net/programming/bscounter>

"This is a web hit counter/tracker written in Perl, features include: blocking of multiple hits from the same user, insertion of commas, text-based or graphical modes, supports multiple counters from the same script, and tracks users' browsers, operating systems, locations, top 20 referrers, and top 20 search engine keywords. (requires SSI OR GD.pm)"

ezmlm <http://www.ezmlm.org>

"ezmlm is a modern mailing list manager. Its purpose is to efficiently send a message to a large number of recipients with minimal delay. It allows automated additions and subtractions from the subscriber database. In addition, it may keep an archive of messages. It can also impose restrictions on what may be sent or retrieved and by whom. Some mailing list managers keep a database of subscriber information and tailor the message specifically for each subscriber. ezmlm sends the same message to all subscribers. This is much more efficient. The benefits to the user are that on average posts to ezmlm lists reach subscribers much faster than they would with other mailing list manager."

FormMail <http://www.scriptarchive.com/formmail.html>

"FormMail is a generic WWW form to e-mail gateway, which will parse the results of any form and send them to the specified user. This script has many formatting and operational options, most of which can be specified through the form, meaning you don't need any programming knowledge or multiple scripts for multiple forms. This also makes FormMail a perfect system-wide solution for allowing users form-based user feedback capabilities without the risks of allowing freedom of CGI access."

Miva Merchant <http://www.miva.com>

"Miva Merchant is a dynamic browser based storefront development and management system that allows merchants to create and administrate multiple online stores from anywhere in the world."

mnoGoSearch <http://www.mnogosearch.org/>

"mnoGoSearch (formerly known as UdmSearch) is a full-featured web search engine software for intranet and internet servers. mnoGoSearch software has a number of unique features, which makes it appropriate for a wide range of applications from search within your site to specialized search systems such as cooking recipes or newspaper searches, ftp archive search, MP3 search, news articles search or even national-wide portal search engine."

ModLogAn <http://jan.kneschke.de/projects/modlogan/>

"ModLogAn is a modular logfile analyzer which is able to analyze logfiles from 15 different server types."

MySQL <http://www.mysql.com>

"MySQL is the world's most popular open source database, recognized for its speed and reliability."

OpenSSL <http://www.openssl.org>

"The OpenSSL Project is a collaborative effort to develop a robust, commercial-grade, full-featured, and Open Source toolkit implementing the Secure Sockets Layer (SSL v2/v3) and Transport Layer Security (TLS v1) protocols as well as a full-strength general purpose cryptography library managed by a worldwide community of volunteers that use the Internet to communicate, plan, and develop the OpenSSL toolkit and its related documentation." Parallels H-Sphere uses system OpenSSL packages. Make sure you keep them updated. OpenSSL packages are upgraded as any other system packages.

osCommerce <http://www.oscommerce.com>

"osCommerce is an online shop e-commerce solution under on going development by the open source community. Its feature packed out-of-the-box installation allows store owners to setup, run, and maintain their online stores with minimum effort and with absolutely no costs or license fees involved."

phpBB <http://www.phpbb.com>

"phpBB is a high powered, fully scalable, and highly customisable open-source bulletin board package. phpBB has a user-friendly interface, simple and straightforward administration panel, and helpful FAQ. Based on the powerful PHP server language and your choice of MySQL, MS-SQL, PostgreSQL or Access/ODBC database servers, phpBB is the ideal free community solution for all web sites."

phpMyAdmin <http://www.phpmyadmin.net>

"phpMyAdmin is a tool written in PHP intended to handle the administration of MySQL over the WWW. Currently it can create and drop databases, create/drop/alter tables, delete/edit/add fields, execute any SQL statement, manage keys on fields."

Urchin <http://www.urchin.com>

"Urchin is the fastest and most accurate web analytics (web statistics) software available." It is a commercial product and is available for Windows 2000, Linux RedHat, and FreeBSD platforms."

WebBBS <http://www.extropia.com/scripts/bbs.html>

"eXtropy WebBBS allows a user to post messages as well as post replies to existing messages. WebBBS keeps track of which messages are posts and which ones are replies and displays them in a hierarchical tree-like fashion. Posts that start new topics are at the top of each tree, and the replies are shown indented beneath the original posts."

WebChat <http://www.extropia.com/opensource.html>

"eXtropy WebChat is a useful application that allows a number of people on the World Wide Web to talk to one another simultaneously. The ability to chat on the Web can be a quick way to hold a virtual meeting."

WebGuestbook <http://www.extropia.com/opensource.html>

eXtropa WebGuestbook is "configurable so that you can specify what your guestbook file looks like and how the script-generated responses are displayed. If configured to do so, WebGuestbook will email the guestbook administrator the text of new entries as well as add them to the guestbook. The script will also respond to new entrants with a configurable "Thank you" message... Finally, the application comes with the capability of 'four letter word' filtering for a child-safe guestbook. You can censor words by adding them to a list of 'bad words'."

Webalizer <http://www.mrunix.net/webalizer/>

"The Webalizer is a fast, free web server log file analysis program. It produces highly detailed, easily configurable usage reports in HTML format, for viewing with a standard web browser."

Supplementary Software

Apache <http://www.apache.org/>

The Apache web-server is used as the back-end for all of PSoft applications running on the Unix platform. More information about configuring and maintaining Apache is available at the Apache project site.

Postgresql <http://www.postgresql.org/>

While our products are designed to work with any SQL-compliant database server, PostgreSQL is the server we use for internal development and testing. Their website not only explains how to properly set up this free database, but also has some information about SQL in general.

ProFTPD <http://proftpd.net>

"Highly configurable GPL-licensed FTP server software."

qmail <http://www.qmail.org/top.html>

"qmail is a secure, reliable, efficient, simple message transfer agent. It is designed for typical Internet-connected UNIX hosts. As of October 2001, qmail is the second most common SMTP server on the Internet, and has by far the fastest growth of any SMTP server."

vpopmail <http://www.inter7.com/vpopmail.html>

"vpopmail (vchkpw) is a collection of programs and a library to automate the creation and maintenance of virtual domain email configurations for qmail installations using either a single UID/GID or any valid UID/GID in /etc/passwd with a home directory. Features are provided in the library for other applications which need to maintain virtual domain email accounts. It supports named or IP-based domains. It works with vqadmin, qmailadmin, vqregister, sqwebmail, and courier-imap. It supports MySQL, Sybase, Oracle, LDAP, and file-based (DJB constant database) authentication. It supports SMTP authentication combined with the qmail-smtp-auth patch. It supports user quotas and roaming users (SMTP relay after POP authentication)."

Used Libraries and Technologies

CGI <http://cgi.resourceindex.com>

Freemarker <http://freemarker.sourceforge.net>

Positive Software uses Freemarker 1.5.1 template format for Parallels H-Sphere and Parallels SiteStudio. Please refer to this site for detailed information about the format and capabilities of Freemarker.

HTML <http://developer.netscape.com>

Java 1.4 <http://www.javasoft.com/>

Perl <http://www.perl.org/>

PHP <http://www.php.net/> and <http://www.zend.com/>

XML <http://www.oasis-open.org/>

Update of Operating Systems

We do not recommend major OS updates that result in changing of OSCODE (refer to Appendix D of Parallels H-Sphere Installation Guide). Rather, perform server migration. You can have it done by Parallels H-Sphere support team, <http://www.parallels.com/support/hsphere/>, or migrate servers by yourself using the following manuals:

- Moving Mail Service (on page 188)
- Moving DNS (on page 205)
- Moving MySQL (on page 220)
- Moving CP Server (on page 108)

However, if you did update your OS to another major version, delete the file `/hsphere/shared/bin/oscode`.

In this chapter:

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Updating Linux	25

Updating FreeBSD Kernel

Parallels H-Sphere requires that FreeBSD kernel be compiled with quota enabled.

➤ *To update kernel on a FreeBSD server in an Parallels H-Sphere cluster:*

- 1 Download and install FreeBSD kernel sources.
- 2 Under root, change directory to `/usr/src/sys/i386/conf`, where the kernel source is located:

```
# cd /usr/src/sys/i386/conf
```

- 3 In this directory, you will have the default `GENERIC` kernel configuration file, and, if the custom kernel compilation has been performed, a custom kernel configuration file, for example `MYKERNEL`.
- 4 Open your current kernel configuration file (for example `MYKERNEL`) and add the line:

```
options QUOTA
```

Important: We don't recommend modifying the default `GENERIC` file. Instead, copy its content to a custom file (like `MYKERNEL`) and perform modifications there!

- 5 Compile and install the kernel:

```
# /usr/sbin/config MYKERNEL
# cd ../../compile/MYKERNEL
# make depend
# make
# make install
```

- 6 Reboot FreeBSD server to activate the new kernel settings.

For more information, see generic instructions on Building and Installing a Custom Kernel (http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/kernelconfig-building.html).

Updating Linux

When you update Linux automatically by means of `up2date` (on page 27), `apt-get` (on page 27), `SWUP`, `yum` (<http://linux.duke.edu/projects/yum/>) or other RPM updaters, you must beforehand exclude some packages installed with Parallels H-Sphere from the update list:

- `rh-postgres`, `postgresql`, `postgresql-server`, `postgresql-libs` on CP and user `postgresql` boxes
- `apache` and `apache-related` packages on Parallels H-Sphere CP, WEB and MAIL boxes
- `proftpd`, `frontpage` and related packages on Parallels H-Sphere WEB boxes

- qmail, vpopmail, ezmlm, sqwebmail and related packages on Parallels H-Sphere MAIL boxes
- bind and related packages on Parallels H-Sphere DNS boxes
- XFree86 or xorg-x11 packages on CP. XFree86-deprecated-libs (or xorg-x11-deprecated-libs) with dependences should be installed. This is critical particularly for Parallels SiteStudio.
- MySQL-server on Parallels H-Sphere MAIL and MySQL boxes

Please note that these packages are also to be removed while preparing servers to Parallels H-Sphere installation.

If you have accidentally upgraded your RedHat without excluding these packages, you need to downgrade PostgreSQL (on page 233).

In this section:

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Linux Up2Date

The up2date utility is used to upgrade the Linux Kernel on RedHat. For generic information on up2date, please read Upgrading the Linux Kernel on Red Hat Linux Systems (<http://www.redhat.com/support/resources/howto/kernel-upgrade/>).

Prior to updating your Linux with the up2date procedure, make sure you exclude specific Parallels H-Sphere related services (on page 25) from the list of packages to be updated.

Linux Apt-Get

Since the up2date (on page 27) utility has become a paid service by RedHat (<http://www.redhat.com/docs/manuals/RHNetwork/ref-guide/up2date.html>), you may use the free apt-get utility instead.

APT-RPM is a port of Debian's apt tools to a RPM based distribution. **apt-get** is an advanced package management utility front-end to easily perform package installation, upgrading and removal. Dependencies are automatically handled, so if you try to install a package that needs others to be installed, it will download all needed packages and install them. More information on apt-get can be found at <http://apt.freshrpms.net/> or <http://pt-rpm.tuxfamily.org/>.

Prior to updating your OS packages with apt-get, make sure you exclude specific Parallels H-Sphere-related services (on page 25) from the apt-get configuration.

To exclude these packages, modify the corresponding part of your `/etc/apt/apt.conf` file, similar to this:

```
// Completely ignore the following packages (not regexp)
// Ignore { };
Ignore { "bind-utils"; };
// Do not try to update the following packages
// Hold { };
Hold {
    "rh-postgres*";
    "postgresql*";
    "apache*";
    "proftp*";
    "qmail*";
    "vpopmail*";
    "ezmlm*";
    "sendmail*";
    "bind*";
    "XFree86-base-fonts*";
    "XFree86-font-utils*";
    "XFree86-libs*";
    "XFree86-libs-data*";
    "XFree86-xf86*";
    "XFree86-Xvfb*";
    MySQL*};
```

Network Address Translation (NAT)

Parallels H-Sphere supports NAT (Network Address Translation) which allows you to use internal IPs in your local area network. When configuring Parallels H-Sphere, use internal IPs in all instances, and Parallels H-Sphere will convert them into external IPs for the DNS settings and control panel web interface.

➤ **To enable NAT support in Parallels H-Sphere:**

1 Log into Control Panel server as cpanel user:

1. Log in as root first:

```
$ su -
```

2. Log in as the cpanel user:

```
# su -l cpanel
```

2 Create the `ips-map.xml` file in the `~cpanel/shiva/psoft_config/` directory in the following format:

```
<ips>
  <ip ext="external_ip" int="internal_ip"/>
  . . .
</ips>
```

Example:

```
<ips>
<ip ext="65.219.197.236" int="192.168.1.27"/>
<ip ext="65.219.197.237" int="192.168.1.28"/>
<ip ext="65.219.197.238" int="192.168.1.29"/>
<ip ext="65.219.197.239" int="192.168.1.30"/>
<ip ext="65.219.197.242" int="192.168.1.31"/>
<ip ext="65.219.197.243" int="192.168.1.32"/>
<ip ext="65.219.197.244" int="192.168.1.33"/>
</ips>
```

3 Set the following record in

`~cpanel/shiva/psoft_config/hsphere.properties:`

```
IPS-XML-FILENAME =
/hsphere/local/home/cpanel/shiva/psoft_config/ips-map.xml
```

4 Restart Parallels H-Sphere to apply changes. To do this, run under root:

For Linux:

```
/etc/rc.d/init.d/httpdcp stop
killall -9 java
sleep 10
/etc/rc.d/init.d/httpdcp start
```

For FreeBSD:

```
/usr/local/etc/rc.d/apachecp.sh stop
killall -9 java
sleep 10
/usr/local/etc/rc.d/apachecp.sh start
```

➤ **To disable NAT support**

- 1 Remove the line mentioned in step 3 above from `hsphere.properties`.
- 2 Restart Parallels H-Sphere.

See below for particular cases of configuring NAT in your Parallels H-Sphere cluster.

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Configuring NAT Firewall.....	31
Migrating IPs with NAT	31

Configuring Newly Installed H-Sphere with NAT Support

➤ **To configure newly Installed H-Sphere with NAT support:**

- 1 Create `ips-map.xml` file and configure `hsphere.properties` to use it as specified in the parent topic.
- 2 In the **E.Manager** menu, add your physical and logical servers with the corresponding internal IPs as described in Parallels H-Sphere Adding Servers and Services Guide.
- 3 Go to **E.Manager -> DNS Manager** and add DNS records with internal IPs as described in DNS Records section of Parallels H-Sphere Service Administrator Guide.

Note: Internal IPs will be transformed to the corresponding external IPs in DNS zones configuration. There will be only external IPs in DNS zones configuration.

Should you still have problems with resolving your servers after that, run DNS Creator (on page 211) using the following command under the `cpanel` user:

```
java psoft.hsphere.tools.DNSCreator -m db -dz
```

Enabling NAT Support on a Live System

➤ *To add NAT support to a Parallels H-Sphere already configured with external IPs:*

- 1 Create `ips-map.xml` file and configure `hsphere.properties` to use it as specified in the parent topic.
- 2 Replace external IPs in **E.Manager** -> **P.Servers** and **L.Servers** with internal IPs.

Note: These internal IPs should be of the same type (shared, dedicated) as the corresponding external IPs.

Example: If there was a shared 64.10.10.10 external IP, the corresponding 192.128.10.10 internal IP should also be configured as a shared IP. In such a case, there will be no need to recreate DNS.

- 3 Replace external IPs in **E.Manager** -> **DNS Manager** with the corresponding internal IPs.

Note: Internal IPs will be transformed to the corresponding external IPs in DNS zones configuration. There will be only external IPs in DNS zones configuration.

Should you still have problems with resolving your servers after that, run DNS Creator (on page 211) using the following command under the `cpanel` user:

```
java psoft.hsphere.tools.DNSCreator -m db -dz
```

Configuring NAT Firewall

Some software (osCommerce, phpBB, and Parallels SiteStudio) connects to resources by hostname (web.example.com, mysql.example.com). Since hostnames resolve to external IPs, you need to configure your NAT firewall so that your physical servers (web.example.com, mysql.example.com) can address themselves and each other both by external and internal IPs.

Alternatively, if you have RedHat Linux running on all servers, you can add the following rule to the iptables for each IP pair on every single box:

```
iptables -t nat -A OUTPUT -p tcp -d <external> -j DNAT --to <internal>
```

For example:

```
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.236 -j DNAT --to 192.168.1.27
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.237 -j DNAT --to 192.168.1.28
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.238 -j DNAT --to 192.168.1.29
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.239 -j DNAT --to 192.168.1.30
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.242 -j DNAT --to 192.168.1.31
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.243 -j DNAT --to 192.168.1.32
iptables -t nat -A OUTPUT -p tcp -d 65.219.197.244 -j DNAT --to 192.168.1.33
```

Migrating IPs with NAT

For IP migration with NAT, see the section on changing IPs (on page 40).

Server Time Synchronization

This document explains how to automate adjusting your servers' time through Network Time Protocol (NTP). Server time synchronization prevents various errors that you are likely to run into unless your servers' time is correct. Automation of server time synchronization is implemented through setting up crontab task for your NTP client.

➤ *To automate adjustment of your servers' time through NTP:*

- 1 Make sure you have got an NTP client software installed on your server(s). If not, download it from www.ntp.org.
- 2 Choose time server(s) (on page 32) and add it to your NTP client configuration.
- 3 Log into your servers as root and use the `crontab -e` command to add an NTP cron task.
In the following example your server time is checked with a time server every 4 hours:

```
# date synchronization
0 */4 * * * /usr/sbin/ntpdate ntp1-{0,1,2}.uni-erlangen.de
```

In this chapter:

NTP Time Servers..... 32

NTP Time Servers

The following links will take you to the lists of time server hosts to choose from.

- Public NTP Pool Time Servers (<http://ntp.isc.org/bin/view/Servers/NTPPoolServers>)
- Public NTP Secondary (stratum 2) Time Servers
(<http://ntp.isc.org/bin/view/Servers/StratumTwoTimeServers>)
- Public NTP Primary (stratum 1) Time Servers
(<http://ntp.isc.org/bin/view/Servers/StratumOneTimeServers>)

To find the time servers that best suit your server location and other requirements, go to <http://ntp.isc.org/bin/view/Servers/WebSearch>

Cron Scripts

Parallels H-Sphere uses cron utility on Unix servers to schedule the automatic launch of the Parallels H-Sphere scripts for updating system information, collecting traffic, analyzing logs, etc.

To view the list of cron jobs on a server, type the following command under root on this server:

```
# crontab -l
```

Crontab enables you to set the sequence and regularity of launching the scripts. To edit crontab list, type the following command under root:

```
# crontab -u root -e
```

For more details on editing cron, read `man 5 crontab`.

Below see the list of cron jobs for Parallels H-Sphere logical servers.

In this chapter:

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Web Server Crons.....	34
DNS Server Cron	34
Mail Server Crons.....	35
PostgreSQL/MySQL Server	35

Control Panel Server Crons

```
30 5 * * * su -l cpanel -c "java psoft.hsphere.TrafficLoader"
0 4 * * * su -l cpanel -c "java psoft.hsphere.UsageLoader"
```

Here,

- `TrafficLoader` is the Parallels H-Sphere Java utility to collect the traffic statistics from the traffic logs to the Parallels H-Sphere database.
- `UsageLoader` is the Parallels H-Sphere Java utility to collect disk usage statistics into the Parallels H-Sphere database.

Web Server Crons

```
*/5 * * * * nice -15 /hsphere/shared/scripts/cron/apache-restart.pl
20 */2 * * * nice -15 /hsphere/shared/scripts/cron/analyze.pl
*/5 * * * * /hsphere/shared/scripts/cron/ftp-restart.pl
0 2 * * * nice -15 /hsphere/shared/scripts/cron/cron_rotate.pl
0 3 * * * nice -15 /hsphere/shared/scripts/cron/ftp_anlz.pl
0 4 * * * nice -15 /hsphere/shared/scripts/cron/ftp_anlz_user.pl
0 6 * * * nice -15 /hsphere/shared/scripts/cron/mnogosearch_index.pl
```

Here,

- `apache-restart.pl` is the Parallels H-Sphere script to restart Apache web server; Apache is restarted only if the `/hsphere/shared/scripts/apache-reconfig` script has been launched by Parallels H-Sphere beforehand.
- `analyze.pl` is the Parallels H-Sphere Perl script to calculate the traffic.
- `ftp-restart.pl` is the Parallels H-Sphere script to restart FTP.
- `cron_rotate.pl` is the Parallels H-Sphere Perl script to collect and rotate user traffic for external traffic calculation programs like Modlogan, Webalizer or Urchin.
- `ftp_anlz.pl` is the Parallels H-Sphere script to analyze virtual FTP traffic and write it to the Parallels H-Sphere statistics directory.
- `ftp_anlz_user.pl` is the Parallels H-Sphere script to analyze FTP traffic and write it to the Parallels H-Sphere statistics directory.
- `mnogosearch_index.pl` is the Parallels H-Sphere Perl script to update the MnoGoSearch index.

DNS Server Cron

```
*/1 * * * * [ "x`ps -ax |grep -v grep|grep named`" = "x" ] &&
/hsphere/shared/scripts/cron/dns_check
```

`dns_check` is the Parallels H-Sphere shell script to check DNS settings.

Mail Server Crons

```
30 * * * * /hsphere/local/var/vpopmail/bin/clearopensmtp
*/20 * * * * /hsphere/local/sqwebmail/share/sqwebmail/cleancache.pl
0 3 * * * nice -15 /hsphere/shared/scripts/cron/mail_overlimit.pl
30 3 * * * nice -15 /hsphere/shared/scripts/cron/mail_anlz.sh
0 * * * * /hsphere/shared/bin/freshclam --quiet
```

Here,

- `clearopensmtp` is the vpopmail utility to clean smtp logs.
- `cleancache.pl` is the sqwebmail utility to clean the webmail cache.
- `mail_overlimit.pl` is the Parallels H-Sphere Perl script to check overlimits on the mail boxes.
- `mail_anlz.sh` is the Parallels H-Sphere Perl script to analyze qmail traffic and place it into the H-Sphere statistics directory.
- `freshclam` is the script to update ClamAV virus patterns.

PostgreSQL/MySQL Server

```
10 3 * * * nice -15 /hsphere/shared/scripts/cron/db_usage.pl
```

`db_usage.pl` is the Parallels H-Sphere Perl script to collect statistics on the database usage for PostgreSQL and MySQL servers.

CHAPTER 9

Traffic Calculation

This chapter dwells specifically on the issues of traffic logs and traffic calculation.

In this chapter:

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Checking Traffic on Physical Servers	37
Processing Traffic by Crons	38
Parsing Traffic by TrafficLoader.....	39

Checking Traffic via Parallels H-Sphere Control Panel

➤ *To check traffic using the control panel:*

- 1 Log into your administrator control panel.
- 2 Check the traffic by going to **Reports -> Transfer Traffic Report**.

Read more in Reports section of Parallels H-Sphere Service Administrator Guide.

Checking Traffic on Physical Servers

Web, FTP and mail logs are located in the `/hsphere/local/var/statistic` directory of the corresponding physical server.

Log are named as follows:

- `dd.mm.YYYY.txt` - web logs
- `dd.mm.YYYY.gst.txt` - ftp logs
- `dd.mm.YYYY.ftp.txt` - virtual ftp logs
- `dd.mm.YYYY.qml` - mail logs

where `dd.mm.YYYY` is the timestamp of log file creation date.

Here, mail logs are generated by the qmail server, and ftp logs by the proftpd utility.

Log files contain specially-formatted information tabulated as follows:

```
|name|xFer(kB)|Hits_All|Hits_HTML|
```

Here, `name` is the domain name, `xFer` is total traffic in kilobytes.

Processed traffic files are moved to the `/hsphere/local/var/statistic/loaded` directory as `.gz` archives.

Refer to section Winbox Traffic Calculation (on page 306) to find out how traffic data on Winbox is read using XMLs.

Processing Traffic by Crons

HTTP traffic

Please refer to Web Traffic Calculation (on page 133) for details.

User FTP traffic

Cron runs the `/hsphere/shared/scripts/cron/ftp_anlz_user.pl` script on everyday basis for collecting user FTP traffic.

`ftp_anlz_user.pl` parses the `/hsphere/local/var/proftpd/xferlog` FTP log file and writes FTP traffic statistics into the timestamp-named `/hsphere/local/var/statistic/dd.mm.YYYY.gst.txt` statistics files.

Virtual FTP traffic

Cron runs the `/hsphere/shared/scripts/cron/ftp_anlz.pl` script on everyday basis for collecting virtual FTP traffic.

`ftp_anlz.pl` parses the `/hsphere/local/var/proftpd/logs/{vhost_id}.ftp.log` logs files for each virtual FTP account and writes traffic statistics into the timestamp-named `/hsphere/local/var/statistic/dd.mm.YYYY.ftp.txt` statistics files.

Mail traffic

Cron runs the `/hsphere/scripts/cron/mail_anlz.pl` script on everyday basis to collect mail traffic. The script analyzes the `/var/log/maillog` Qmail log file and collects mail statistics into the specially formatted `dd.mm.YYYY.qml.txt` files in the Parallels H-Sphere statistics directory (`/hsphere/local/var/statistic`).

Parsing Traffic by TrafficLoader

- 1 TrafficLoader Parallels H-Sphere Java class is in charge of parsing the server traffic. That's how it is launched by cron:

```
30 5 * * * su -l cpanel -c 'java psoft.hsphere.TrafficLoader'
```

TrafficLoader processes Web, mail, FTP and virtual FTP traffic in the formatted statistics files located in the `/hsphere/local/var/statistic` directory and inserts these lines into the `translog` table of the Parallels H-Sphere system database.

TrafficLoader also calls the `/hsphere/shared/scripts/xfer_cat.pl` script to move the already loaded statistics files to the `/hsphere/local/var/statistic/loaded` directory as `.txt.gz` archives.

IP Migration (Changing IPs)

This chapter explains how to change IPs on Unix/Linux servers for Parallels H-Sphere 2.4.x and up. If you have an older version, please get updated first.

In this chapter:

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Changing External IPs on Systems with NAT	50
Changing Internal IPs on Systems With NAT	51
Configuring Parallels H-Sphere to Work on Two Sets of IPs.....	51

Changing IPs on Systems Without NAT

Parallels H-Sphere IP migration is performed by means of Java IP Migrator called by the IPMIGR wrapper available for download from <http://download.hsphere.parallels.com> website. IP Migrator will:

- change Parallels H-Sphere physical, logical, and system IPs
- update IPs in Parallels H-Sphere database
- change IPs in the system files except network startup configuration
- update IP-dependent resources such as apache, FTP and DNS

IP Migrator does not migrate NIC system files to avoid potential problems with server inaccessibility. These files must be migrated manually by the local administrator.

IP Migrator does not modify reverse DNS configuration because Parallels H-Sphere doesn't manage reverse DNS. For information on reverse DNS configuration, you may refer to www.tldp.org/HOWTO/DNS-HOWTO-5.html#ss5.3

In this section:

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IP Migration Map File	42
IP Migration Step by Step.....	44

IP Migration Pre-requisites

Before you begin IP migration, do the following changes, and **do not forget to undo them after the migration**:

- 1 Add the following line to the very beginning of the /hsphere/shared/scripts/apache-reconfig script. This will prevent Apache from restarting gracefully after posting each web site configuration:

```
exit 0
```

- 2 **(Skip this step for IP Migrator 0.3 and up, and for Parallels H-Sphere 2.4.3 Patch 5. If you do the migration under FreeBSD, and IP to be bound is the same as main IP, you need to perform this step notwithstanding the IP Migrator version. Otherwise your system is at risk of getting crashed.)**

Add the following line to the very beginning of the /hsphere/shared/scripts/ip-shared script. This will protect the main Parallels H-Sphere IP.

```
exit 0
```

After that, replace the IP on the main network interface to the new IP for all boxes, and set up the old IP as an alias for the new one.

Example:

```
eth0 Link encap:Ethernet HWaddr 00:D2:B5:A1:07:12
inet addr:[New_IP] Bcast:[New_Broadcast] Mask:[New_NetMask]:
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:269050319 errors:0 dropped:0 overruns:0 frame:11
TX packets:336024701 errors:0 dropped:0 overruns:19 carrier:0
collisions:0 txqueuelen:100
Interrupt:21 Base address:0x4000

eth0:0 Link encap:Ethernet HWaddr 00:D2:B5:A1:07:12
inet addr:[Old_IP] Bcast:[Old_Broadcast] Mask:[Old_NetMask]
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
Interrupt:21 Base address:0x4000
```

Important: If IP migration is performed on whsphere-apache.html#script_restarting_apache within one datacenter, make sure that your servers can be accessed from the Internet at both old and new IPs. If you change to IPs outside your datacenter, it would take a downtime before you make your servers available on new IPs.

IP Migration Map File

Before you start IP migration, you may manually create an **IP migration map file** in the cpanel user home directory `~cpanel/`. The file contains the list of old IPs to be migrated to new IPs. It can be either an XML file (on page 43), or a plain text file of the following format:

```
IP_OLD1 IP_NEW1 [MASK_NEW1]
IP_OLD2 IP_NEW2 [MASK_NEW2]
...
IP_OLDn IP_NEWn [MASK_NEWn]
```

Specify the mask in the third column only if it differs from the default mask (255.255.255.0) for this particular IP. Otherwise, omit it.

This manually created IP migration map file will be used by the Parallels H-Sphere IP migrator (on page 45) script. IP migrator is able to convert plain text map files into XML and provides interface to automatically create a ready-to-use map XML file according to the admin's choice.

Important: IP migration map file must have the `cpanel:cpanel` ownership! Either create it under the cpanel user (on page 65), or run under root:

```
chown cpanel:cpanel ipmap.xml
```

In this section:

IP Migration Map XML File 43

IP Migration Map XML File

IP migration map XML file contains the set of IPs to be replaced with new ones. This file must be created in the cpanel user home directory `~cpanel/` and must have `cpanel:cpanel` ownership.

This document explains alternative ways of creating `ipmigration.xml`.

Creating `ipmigration.xml` Manually

IP migration XML has the following format:

```
<?xml version="1.0"?>
<!DOCTYPE ips [
<!ELEMENT ips (ip+)>
<!ELEMENT ip (#PCDATA)>

<!ATTLIST ip name CDATA #REQUIRED>
<!ATTLIST ip new_ip CDATA #REQUIRED>
<!ATTLIST ip new_mask CDATA "[New_NetMask]">
]>
<ips>
<!-- Delete the lines with IPs you don't want to migrate! -->
<ip name="[Old_IP1]" new_ip="[New_IP1]" />
<ip name="[Old_IP2]" new_ip="[New_IP2]" />
<ip name="[Old_IP3]" new_ip="[New_IP3]" />
<ip name="[Old_IP4]" new_ip="[New_IP4]" new_mask="[New_NetMask2]" />
</ips>
```

In the DTD header of the XML file, specify what attributes will be provided with each IP. Set `[New_NetMask]` to the default netmask value for new IPs:

```
<!ATTLIST ip new_mask CDATA "255.255.255.0">
```

To set a different netmask for a particular IP, set the `new_mask` attribute in the `ip` tag for that IP. Otherwise, omit the `new_mask` attribute.

In the `<ips> ... </ips>` block, list all old-new IP pairs, including users' dedicated IPs. If you have specified the common netmask in the DTD header, you do not need to set it in the definition line for each individual IP:

```
<ip name="[Old_IP]" new_ip="[New_IP]" />
```

If you have set new mask in the DTD header to `#REQUIRED`, you need to specify the netmask parameter for each IP:

```
<ip name="[Old_IP]" new_ip="[New_IP]" new_mask="[New_NetMask]" />
```

Creating `ipmigration.xml` by Parallels H-Sphere IP Migrator

IP Migrator allows you to create `ipmigration.xml` automatically when you perform migration by running the IP migrator script (on page 45).

IP Migration Step by Step

The steps below are performed on the server with the Control Panel installed.

- 1 Log into the CP server as root:

```
# su -
```

- 2 Download IP Migrator:

```
# wget http://download.hsphere.parallels.com/shiv/IPMIGR-0.9.1.tgz
```

- 3 Untar the archive:

```
# tar -zxvf IPMIGR-x.x.tgz
```

where x.x is IP Migrator version.

- 4 Enter the IP Migrator directory:

```
# cd IPMIGR
```

- 5 Install the IP Migrator:

```
# make install
```

This will install the following files:

- `~cpanel/ipmigrator` - IP migrator itself
- `~cpanel/IPMigratorFast.jar` - makes Parallels H-Sphere related changes: in the system database, configs, etc.
- `~cpanel/shiva/ipm/ipmigr` - makes changes in service config files on Parallels H-Sphere servers

- 6 Stop Parallels H-Sphere (on page 54)
- 7 Back up Parallels H-Sphere system database (on page 432)
- 8 Log in as the cpanel user (on page 65)
- 9 Run the IP Migrator script (on page 45). The IP Migrator script is located in the cpanel home directory.
- 10 Start Parallels H-Sphere (on page 54)
- 11 Remove the following line from `/hsphere/shared/scripts/apache-reconfig` and from `/hsphere/shared/scripts/ip-shared`:

```
exit 0
```
- 12 If the IPs have been migrated successfully and all IP-dependent services seem to work fine, finish the migration by removing the old IPs. To remove the old IPs, run:

```
./ipmigrator --clear-old-ips -- xml=<ipm_xml>
```

Where `<ipm_xml>` is the IP migration map XML file that you used for the migration.

Example:

```
./ipmigrator --clear-old-ips --xml=ipm1.xml
```

```

Parallels H-Sphere version is: 2.4.3.503. The new
IPMigratorFast will be used.
Removing old IPs
Done

```

- 13** Run the following Java tool to regenerate all config.xml files on all servers according to the Parallels H-Sphere system database:

```
java psoft.hsinst.bboxes.ClusterPreparer
```

In this section:

Running the IP Migrator Script..... 45

Running the IP Migrator Script

This instruction guides you step-by-step through running the IP Migrator script which is the main part of the IP migration (on page 40) procedure. The IP Migrator script is located in the cpanel home directory. To start running the script, type:

```
./ipmigrator
```

Carefully follow the error notifications. You may also find more detailed information on the migration process in the `~cpanel/Migration.log` and the `/var/log/hsphere/hsphere.log` files.

IP migrator will guide you through the following steps. Let's take an example with the following physical servers:

Server ID	Server Name	Server IP Address
22	ns4.vps.psoft	192.168.112.234
21	ns3.vps.psoft	192.168.114.233
20	cp.vps.psoft	192.168.112.232

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Step 1. Changing Physical Server IPs

Enter ID of the server you want to change IPs for.

Type [q] to quit the script or [-] to skip this step.

```
[IPMigrator]: 21
Enter new 192.168.112.233 IP for ns3.vps.psoft:
[IPMigrator]: 192.168.112.233
Uploading front-end migration scripts...
=== 192.168.112.233 ===
```

Step 2. Preparing IP Migration Map

On this step, create or edit IP migration map. If you quit right after editing or creating the file, your changes will not be lost.

Enter:

- [f] to use existing IP migration map XML file (on page 43)
- [l] to transform existing IP map plain text file with whitespace separated values to XML format
- [c] to create a new IP map XML structured file based on your Parallels H-Sphere boxe(s) configuration
- [e] to set the editor to open the IP map file with. By default, it is [vi]
- [b] to go back to the previous step
- [q] to quit the script

By default, script looks for the file in the current directory. Specify the full path if you have it in a different location.

Examples:

```
[IPMigrator]: f
Current directory is: /hsphere/local/home/cpanel/
Enter the filename: ipm1.xml

[IPMigrator]: l
Current directory is: /hsphere/local/home/cpanel/
Enter the plain (text file with whitespace separated values) IP map
file name to load from: ipm1.txt
Current directory is: /hsphere/local/home/cpanel/
Enter the new (XML structured) IP map file name to load into: ipm1.xml
[IPMigrator]: c
Current directory is: /hsphere/local/home/cpanel/
Enter the plain IP map new file name be generated: ipm2.txt
```

Step 3. Reposting configs

Important! If you are migrating IPs of your webserver(s), check the corresponding logical server(s).

On this step, check logical web servers you want to repost apache configurations for. Say, you have the following logical web servers:

ID	Server Name	Server Role	Process
27	web2.vps.psoft	web servers	No
24	web.vps.psoft	web servers	No
31	web3.vps.psoft	web servers	No

Enter:

- [server_id] ID of the server you want to add to the migration list
- [-] to start the migration
- [b] to go back to the previous step

[q] to quit the script Example:

```
[IPMigrator]: 31
```

Step 4. Final Check

Warning! The rest of the steps imply physical changes. If you do not want the migration to continue, make sure to quit the script now.

On this step check which files on your servers would be changed, except for Parallels H-Sphere dependent resources.

Enter:

- [server_id] ID of the server you want to preview the changes for
- [-] to continue
- [r] to roll the changes back
- [b] to go back to the previous step
- [q] to quit the script

```
[IPMigrator]: 320
Line 8: CP_HOST = 192.168.112.232
Line 119: PATH_SITE_STUDIO =
http://192.168.112.232:8080/studio/servlet/psoft.masonry.Builder
----
File /hsphere/local/home/cpanel/shiva/psoft_config/hsphere.properties
IP entries: --- 2
```

```

-----
Line 2: 192.168.112.232:allow,RELAYCLIENT=""
Line 3: 192.168.112.233:allow,RELAYCLIENT=""
Line 4: 192.168.112.234:allow,RELAYCLIENT=""
----
File /hsphere/local/var/vpopmail/etc/tcp.smtp
IP entries: --- 3
-----
Line 6: $cfgServers[1]['host'] = '192.168.112.233';
----
File /hsphere/shared/apache/htdocs/phpMyAdmin/config.inc.php
IP entries: --- 1
-----
Line 21: <A href="http://192.168.112.232/cgi-bin/sqwebmail">SQWebMail -
mail client</A><BR>
Line 22: <A href="http://192.168.112.232/horde/index.php">IMP - mail
client</A><BR>
Line 23: <A
href="http://192.168.112.232:8080/psoft/servlet/psoft.hsphere.CP?action
=change_mbox_password">Change your POP3 password</A><BR>
----
File /hsphere/shared/apache/htdocs/index.html
IP entries: --- 3
-----
Line 288: <VirtualHost 192.168.112.232>
Line 296: ServerName 192.168.112.232
Line 310: #<VirtualHost #192.168.112.232>
Line 318: #ServerName #192.168.112.232
----
File /hsphere/local/config/httpd/httpd.conf
IP entries: --- 4
-----
Line 3: Bind 192.168.112.232
----
File /hsphere/local/config/ftpd/proftpd.conf
IP entries: --- 1
-----
Line 4: 192.168.112.236;
Line 5: 192.168.112.232; };
----
File /etc/named.conf
IP entries: --- 2
-----
Line 1: 192.168.112.236 255.255.255.0
Line 2: 192.168.112.232 255.255.255.0
Line 3: 192.168.112.232 255.255.255.0
----
File /hsphere/local/network/ips
IP entries: --- 3
-----
Line 2: 192.168.112.236 vps1.psoft
Line 3: 192.168.112.232 vps1.psoft
Line 4: 192.168.112.232 cp.vps.psoft
Line 5: 192.168.112.232 cp.vps.psoft
Line 6: 192.168.112.236 cp.vps.psoft
Line 7: 192.168.112.232 cp.vps.psoft
Line 9: 192.168.112.232 cp.vps.psoft
Line 10: 192.168.112.236 cp.vps.psoft
----
File /etc/hosts

```



```

IP entries: --- 8
-----
Line 1: nameserver 192.168.112.232
Line 2: nameserver 192.168.112.236
Line 3: nameserver 192.168.112.233
Line 4: nameserver 192.168.112.234
-----
File /etc/resolv.conf
IP entries: --- 4
-----

-----
If you want to proceed the IP changes in the files listed above use the
following command:
/hsphere/shared/scripts/ipm/ipmigr --action=process --scode=mncw <
ipmigration.xml
If you don't want to proceed any changes you can clear the temporary
files by running the following command:
/hsphere/shared/scripts/ipm/ipmigr --action=clear --scode=mncw <
ipmigration.xml

```

Step 5. Changing System and Logical IPs

The process will take a while to complete.

Example:

```

Changing IPs in:
-----
----
Parallels H-Sphere Database... Done
-----
----
Server configuration files... Done
-----
----
Changing IP Dependent resources... Done
-----
----
Fixing service zones
Done
-----
----
Fixing Custom records
Done
-----
----
Reposting SSL CP VHost configs
Done
-----
----
Press Enter to continue:

```

When you have finished running the IP Migrator script, go on with the IP migration (on page 40).

Changing External IPs on Systems with NAT

This section explains how to change your external IPs on a system using NAT (see details here (on page 28)). You may need to follow this instruction when you move to a different location and would like to preserve your internal IP settings.

- 1 Change IPs in `~cpanel/shiva/psoft_config/ips-map.xml` and `~cpanel/shiva/psoft_config/hsphere.properties`
- 2 Change IPs in Parallels SiteStudio configs
`/hsphere/shared/SiteStudio/psoft_config/*`. You can use a simple script:

```
#!/bin/sh
if [ $# = 0 ] ; then
echo $"Usage: changeip.sh OldIP NewIP"
exit 1
fi
for i in /hsphere/shared/SiteStudio/psoft_config/*.properties
do
echo "Processing $i";
echo ",s/$1/$2/g
wq" | ed $i
done
```

- 3 Change external IPs in `httpd.conf` on the web box.
- 4 Restart Parallels H-Sphere (on page 54)
- 5 Restart Apache (on page 375)
- 6 Log in as the cpanel user (on page 65) and recreate zones with the dns creator:

```
java psoft.hsphere.tools.DNSCreator -m db -dz
```

Changing Internal IPs on Systems With NAT

➤ *To change from one set of internal IPs to another:*

- 1 Change the IPs in `~cpanel/shiva/psoft_config/ips-map.xml`.
- 2 Change your internal IPs by following the instruction on Changing IPs on Systems Without NAT (on page 40).

Configuring Parallels H-Sphere to Work on Two Sets of IPs

If you would like to ensure smooth change of IPs and have everything duplicated on the old and new sets of IPs before making the switch, you need to do the following:

On the Web box:

- 1 **Before** the IP migration you need to copy the `/hsphere/local/config/httpd/sites` directory to `/hsphere/local/config/httpd/sites.old` to preserve your old client's apache configs.
- 2 Go to `/hsphere/local/config/httpd/sites.old` and edit `index.conf` changing `sites` to `sites.old` (`cd /hsphere/local/config/httpd/sites.old; perl -pi -e 's/sites/sites.old/' index.conf`)
- 3 Copy `namevh.conf` to `namevh.old.conf`
- 4 Proceed with the IP migration.
- 5 Add the following lines at the bottom of the `/hsphere/local/config/httpd/httpd.conf` file:

```
Include /hsphere/local/config/httpd/sites.old/[0-9]*.conf
Include /hsphere/local/config/httpd/namevh.old.conf
```

On the DNS servers:

- 6 Add your old DNS IPs to the `/etc/named.conf` config to force your DNS servers to listen to the old IPs.
- 7 Bind your old IPs to the NIC on your servers.

Restarting Services

This chapter explains how to start, stop, and restart daemon services on Parallels H-Sphere servers under Linux and FreeBSD.

Important: Do not stop services with `kill`, as it may cause information loss!!!

Note: You can also restart services from the Admin CP as described in section System Service Management of Parallels H-Sphere Service Administrator Guide.

Below instructions do not apply to restarting DNS server (named) for Bind 8.x (on page 57).

➤ **To start services, run:**

Linux:

```
# /etc/rc.d/init.d/<SERVICE> start
```

FreeBSD:

```
# /usr/local/etc/rc.d/<SERVICE> start
```

➤ **To stop services, run:**

Linux:

```
# /etc/rc.d/init.d/<SERVICE> stop
```

FreeBSD:

```
# /usr/local/etc/rc.d/<SERVICE> stop
```

➤ **To restart services, run:**

Linux:

```
# /etc/rc.d/init.d/<SERVICE> restart
```

FreeBSD:

```
# /usr/local/etc/rc.d/<SERVICE> restart
```

An alternative method - and often more appropriate - is to stop and then start the service:

Linux:

```
# /etc/rc.d/init.d/<SERVICE> stop
# sleep 10
# /etc/rc.d/init.d/<SERVICE> start
```

FreeBSD:

```
# /usr/local/etc/rc.d/<SERVICE> stop
# sleep 10
# /usr/local/etc/rc.d/<SERVICE> start
```

Note: While restarting Parallels H-Sphere (on page 54), run `killall -9 java` after you stop and before you start CP.

Warning: Do not use `kill -9` to stop named, as it may cause information loss!

Following are the commands to put in place of **<SERVICE>**:

Service	Linux	FreeBSD
Parallels H-Sphere (tomcat)	httpdcp	apachecp.sh
Parallels H-Sphere Database (PostgreSQL)	postgresql	010.pgsql.sh
Apache	httpd	apache.sh
FTP	proftpd	proftpd.sh
Qmail	qmaild	qmaild.sh
SpamAssassin	spamd	spamd.sh
ClamAV	clamd	clamd.sh
PostgreSQL (User DB)	postgresql	010.pgsql.sh
MySQL	mysqld	mysql-server.sh
DNS (Bind 9.3 and up (on page 198))	named	named.sh
ImapProxy	imapproxy	imapproxy.sh

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Restarting Parallels H-Sphere Control Panel

➤ *To restart Parallels H-Sphere Control Panel:*

- 1 Log into the CP server as root.
- 2 Run:

Linux:

```
/etc/rc.d/init.d/httpdcp stop  
/etc/rc.d/init.d/httpdcp start
```

FreeBSD:

```
/usr/local/etc/rc.d/apachecp.sh stop  
/usr/local/etc/rc.d/apachecp.sh start
```

Restarting Parallels H-Sphere Database

Parallels H-Sphere database is used to store system data. It is not used for hosting. Usually, it is located on the same server as the control panel and is installed and executed under user `pgsql` (FreeBSD) or `postgres` (Linux).

➤ *To restart the database, execute:*

Linux:

```
# /etc/rc.d/init.d/postgresql stop  
# sleep 1  
# /etc/rc.d/init.d/postgresql start
```

FreeBSD:

```
# /usr/local/etc/rc.d/010.pgsql.sh stop  
# sleep 1  
# /usr/local/etc/rc.d/010.pgsql.sh start
```

Restarting Web Server

➤ *To restart Web server:*

- 1 Login as root.
- 2 Execute the following command:

Linux:

```
# /etc/rc.d/init.d/httpd stop
# sleep 10
# /etc/rc.d/init.d/httpd start
```

FreeBSD:

```
# /usr/local/etc/rc.d/apache.sh restart
```

➤ *To restart FTP, run:*

Linux:

```
# /etc/rc.d/init.d/proftpd stop
# sleep 1
# /etc/rc.d/init.d/proftpd start
```

FreeBSD:

```
# /usr/local/etc/rc.d/proftpd restart
```

Restarting PostgreSQL Server

➤ *To start PostgreSQL server, run:*

Linux:

```
# /etc/rc.d/init.d/postgresql start
```

FreeBSD:

```
# /usr/local/etc/rc.d/010.pgsql.sh start
```

➤ *To stop PostgreSQL, run:*

Linux:

```
# /etc/rc.d/init.d/postgresql stop
```

FreeBSD:

```
# /usr/local/etc/rc.d/010.pgsql.sh stop
```

➤ *To restart PostgreSQL, run:*

Linux:

```
# /etc/rc.d/init.d/postgresql restart
```

FreeBSD:

```
# /usr/local/etc/rc.d/010.pgsql.sh stop
# sleep 10
# /usr/local/etc/rc.d/010.pgsql.sh start
```

Restarting Mail Server

➤ *To restart the mail server*

- 1 Login as root
- 2 Execute the following command:

Linux:

```
# /etc/rc.d/init.d/qmaild stop
# sleep 1
# /etc/rc.d/init.d/qmaild start
```

FreeBSD:

```
# /usr/local/etc/rc.d/qmaild.sh stop
# sleep 1
# /usr/local/etc/rc.d/qmaild.sh start
```

➤ *To restart the auth daemon for sqWebMail under Linux, run:*

```
# /hsphere/local/sqwebmail/libexec/authlib/authdaemond restart
```

Restarting MySQL Server

➤ *To start MySQL server, run:*

Linux:

```
# /etc/rc.d/init.d/mysqld start
```

FreeBSD:

```
# /usr/local/etc/rc.d/mysql-server.sh start
```

➤ *To stop MySQL, run:*

Linux:

```
# /etc/rc.d/init.d/mysqld stop
```

FreeBSD:

```
# /usr/local/etc/rc.d/mysql-server.sh start
```

➤ *To restart MySQL, run:*

Linux:

```
# /etc/rc.d/init.d/mysqld restart
```

FreeBSD:


```
# /usr/local/etc/rc.d/mysql-server.sh start stop
# sleep 10
# /usr/local/etc/rc.d/mysql-server.sh start start
```

Restarting Named

➤ *To start, stop, or restart named on the Parallels H-Sphere DNS server:*

- 1 Log in as root.
- 2 Run the respective command below.

Warning: Do not use `kill -9` to stop named, as it may cause information loss!!!

Linux:

```
starting: /etc/rc.d/init.d/named start
stopping: /etc/rc.d/init.d/named stop
restarting: /etc/rc.d/init.d/named restart
```

FreeBSD:

For Bind 9.3 and up (on page 198):

```
starting: /usr/local/etc/rc.d/named.sh start
stopping: /usr/local/etc/rc.d/named.sh stop
restarting: /usr/local/etc/rc.d/named.sh restart
```

For Bind 8.x:

```
starting: /usr/sbin/named -u named
stopping: /usr/sbin/ndc stop -u named
restarting: /usr/sbin/ndc restart -u named
```

Warning: Without "`-u named`", the command will run under root.

Usually, a Parallels H-Sphere DNS server contains a cron DNS check which starts every 1 or 2 minutes and, if named is not started, starts it. Therefore, do not feel alarmed if you stop named and see that it keeps working for another several minutes.

Control Panel Server

Control Panel (CP) is the Parallels H-Sphere logical representation for managing servers and hosting resources via the web interface. It is implemented as a Java servlet that runs on its own Apache server. CP is a separate logical server and is included in every Parallels H-Sphere configuration.

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Understanding Control Panel Server Configuration

This section provides the necessary information you need to know about the configuration of Parallels H-Sphere control panel server.

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Installed Software

On control panel server the following software is used:

- Apache server version 1.3.x and 2.2.xSSL support: OpenSSL
- CP back-end servlet engine: Jakarta Tomcat (on page 66)
- System database: PostgreSQL 7.4.x and up
- SiteStudio - site builder optionally installed with H-Sphere on the CP server.

Interaction Between Servers

Servers in H-Sphere clusters communicate only through the Control Panel. There is no way for servers like web and DNS exchange commands directly.

To communicate with Linux/Unix servers, CP uses Shell or Perl scripts via SSH protocol (port 22) as the `cpanel` user.

Communication between the CP and Windows servers is performed through the SOAP protocol, <http://www.w3.org/TR/soap/>, (port 10125) which allows for cross-platform exchange of data in XML documents via HTTP.

Location of CP Files and Directories

By default, the `cpanel` user home directory is `/hsphere/local/home/cpanel`.

There you will find the following files and directories:

- `apache` - CP Apache installation
- `apache/etc` - CP Apache configuration
- `apache/etc/httpd.conf` - CP Apache configuration file
- `shiva` - H-Sphere related binary and config files
- `shiva/psoft_config` - H-Sphere config files
- `shiva/psoft_config/hsphere.properties` - H-Sphere config file
- `shiva/psoft_config/HS_VERSION` - file that contains version number of H-Sphere
- `shiva/shiva-templates` - H-Sphere templates location, DocumentRoot for Apache server.
- `shiva/shiva-templates/index.html` - Redirect to control panel; served when the `http://cp.domain.com:8080/` CP URL is accessed
- `/hsphere/shared/SiteStudio/psoft_config/masonry.properties` - SiteStudio config file (could be on a different server)

IMPORTANT: To make changes in these files, log into the CP server as the `cpanel` user.

The Parallels H-Sphere Configuration File

The H-Sphere configuration file should be located at
`~cpanel/shiva/psoft_config/hsphere.properties`

1 CP URL configuration - URL by which H-Sphere is called:

- `CP_HOST = cp.domain.com` -- host name
- `CP_PORT = 8443` -- port
- `CP_PROTOCOL=https://` -- protocol
- `CP_URI = /psoft/servlet/psoft.hsphere.CP`

Notes:

- This is not the only place where those settings have to be altered.
- URI cannot be changed here at the moment.
- Make sure that DNS is properly configured if you want to change domain.
- Make sure to alter Apache if you want to change domain and port.

2 Database settings

3 Log file:

`log4j.appender.A1.File=/var/log/hsphere/hsphere.log` - location of the log file.

Control Panel Apache Server Configuration

CP Apache home directory is `/hsphere/local/home/cpanel/apache`.

All CP Apache server configurations are placed into the `etc/jserv` subdirectory of the Apache home directory: `/hsphere/local/home/cpanel/apache/etc/jserv`.

This directory also has its symlink:

`/hsphere/local/home/cpanel/apache/conf`.

Control Panel Back-End Servlet Engine

CP server uses Jakarta Tomcat servlet engine and is automatically installed with Tomcat (on page 66) embedded.

Reseller Configuration

`/hsphere/local/home/cpanel/apache/etc/sites/` contains resellers' SSL and virtual host configuration.

- `/hsphere/local/home/cpanel/apache/etc/{reseller_main_account_name}.conf` - reseller Apache virtual host configuration file.

- `/hsphere/local/home/cpanel/apache/etc/{reseller_main_account_name}/` - reseller SSL directory.

Reseller SSL Configuration

If SSL is enabled for reseller, the following files are placed into the reseller SSL directory:

- `server.crt` - reseller SSL certificate
- `server.key` - reseller SSL private key

CP SSL Configuration

In the `/hsphere/local/home/cpanel/apache` CP Apache home directory:

- `etc/ssl.crt/server.crt` - file with server SSL certificates.
- `etc/ssl.csr/server.csr` - file with SSL signing request.
- `etc/ssl.key/server.key` - file with SSL/RSA private key.

CP Apache Log Files

Log files are located in the `/hsphere/local/home/cpanel/apache/logs` directory.

CP Traffic Calculation

Traffic generated from browsing the Control Panel is not included in the summary traffic. To track it, Parallels H-Sphere owners may set up any third-party utilities.

The Parallels H-Sphere System Database

The Parallels H-Sphere system database is used to store system data. In normal Parallels H-Sphere configuration, it runs on PostgreSQL server. Usually, the system database is located on the same server with the Control Panel.

The system database is not for user hosting! PostgreSQL hosting server cannot be installed on the same box with the system database!

Note: The Parallels H-Sphere database is executed under the `pgsql` or `postgres` user.

The System Database Settings

Database settings in `hsphere.properties` (this should be enough to connect to db):

```
DB_DRIVER = org.postgresql.Driver
DB_URL = jdbc:postgresql://127.0.0.1/hsphere - the system database
name, usually hsphere
DB_USER = wwwuser - the system db user name, usually wwwuser
DB_PASSWORD = your_db_password - the system db user password
DB_NEWID = SELECT nextval(''{0}')
```

Logging into the System Database

➤ *To log into the system database:*

- 1 Login as the `cpanel` user (on page 65) to the server where the system database is located (usually, CP server).
- 2 Enter the `hsphere` database (usually, under the `wwwuser` user name):

```
# psql hsphere [user_name]
```

See also the instructions on:

- restarting the system database (on page 54)
- backing up the system database (on page 432)
- upgrading the system PostgreSQL (on page 92)
- the system database optimization (on page 97)
- PostgreSQL localization (on page 230) (choosing the language for PostgreSQL)

VACUUM Utility

The Postgres VACUUM instruction allows cleaning up the server transactions. Enter the psql server:

```
# psql hsphere wwwuser
```

and type in the password set in `hsphere.properties`.

In the psql command line, type the 'vacuum full' command:

```
vacuum full;
```

The command may vary in different versions of Postgres.

Note: vacuum is a time-consuming procedure; it may take up to several hours to complete.

CP Mail Queue

The `mail queue` file is assigned to store unsent CP messages (e.g., trouble tickets, system notifications, mass mail, etc.) when CP is restarted - formerly, they were lost after CP restart. Mail queue location is set in `hsphere.properties`:

```
MAIL_SWP=/hsphere/local/home/cpanel/shiva/mail.swp
```

Logging in as the cpanel User

Parallels H-Sphere control panel runs under the `cpanel` user on the CP server. You need to log in as `cpanel` to perform many administrative tasks, such as CP configuration, customization, access the system database, running console Parallels H-Sphere java tools, and many others.

Under `cpanel`, Parallels H-Sphere control panel communicates with other Parallels H-Sphere boxes via SSH.

➤ *To log in as the `cpanel` user:*

1 Log in as root first:

```
$ su -l
```

2 Log in as the `cpanel` user:

```
# su -l cpanel
```

Logging into Parallels H-Sphere System Database

To run SQL queries against the Parallels H-Sphere system database, you need to be logged into Parallels H-Sphere system database.

➤ *To log into Parallels H-Sphere System Database:*

1 Log in as root on the CP server:

```
$ su -
```

2 Log in as the `cpanel` user:

```
# su -l cpanel
```

3 Connect to the system database:

```
# psql -d hisphere wwwuser
```

Launching Control Panel Cron Jobs

Along with the cron scripts (on page 33) that Parallels H-Sphere puts into its physical servers' crontabs, there are several **background jobs** that are executed by Parallels H-Sphere on the Control Panel server:

- *Accounting* - does recurrent billing for end users
- *OverLimitCron* - checks that the account is not going over the limit
- *ResellerCron* - does billing for resellers
- *TrialCron* - suspends expired trial accounts
- *RevenueCron* - calculates summary billing info

- *ContentMovingCron* - completes the process of moving user content
- *FailedSignupsCron* - sends emails about failed signups (every 5 minutes)
- *TTAutocloseCron* - closes trouble tickets answered certain time ago
- *VPSCron* - queries the status of creating virtual servers (every 4 minutes)
- *ecCron* - processes the `external_credits` table and adds payments performed within an external payment system outside Parallels H-Sphere to this table as the account credits, thus integrating external payments into Parallels H-Sphere. Read more about external credits configuration in External Credits section of Parallels H-Sphere Developer Guide.

These cron processes use the `last_start` table in the Parallels H-Sphere database. This table contains the following fields:

```
name varchar(20) NOT NULL PRIMARY KEY,  
value timestamp,  
last_user int8
```

When Parallels H-Sphere is restarted, the values are read from this table for each cron:

- `name` - CP cron job name as in the list above (corresponds to the cron tag's name attribute in cron XML configuration file)
- `value` - last time that cron was executed
- `last_user` - `user_id` of the last user that was calculated with the cron (used only for accounting and overlimit).

CP Cron XML Configuration Files

CP cron settings are defined and customized in the corresponding XML configuration file described in CP Cron Configuration section of Parallels H-Sphere Developer Guide. You can add new custom CP crons according to the instructions from Adding Custom CP Cron Jobs of Parallels H-Sphere Developer Guide and/or change cron job settings such as priority, starting time and period. Such customization can also be done by means of Parallels H-Sphere packages (see Building Packages section of Parallels H-Sphere Developer Guide).

Background Job Manager

Background Job Manager is a utility that allows you to enable, start and disable selected cron jobs from the CP interface. Cron jobs are available from the Admin control panel, the **Background Job System** section.

Configuring Tomcat

Tomcat installation is located in the `/hsphere/local/home/cpanel/jakarta` directory.

Important: The core Parallels H-Sphere directories such as `shiva`, `shiva-templates`, `psoft`, and `psoft-config` are located in the `/hsphere/local/home/cpanel/hsphere/WEB-INF/classes/` directory with Parallels H-Sphere classes run by Tomcat. Symlinks to these new locations are put in place of the old directories to preserve Parallels H-Sphere integrity with previous versions' configuration.

Tomcat Configuration Files

Tomcat configuration files are located in the `/hsphere/local/home/cpanel/jakarta/conf` directory:

- `/hsphere/local/home/cpanel/jakarta/conf/server.xml` - XML config file for Tomcat;
- `/hsphere/local/home/cpanel/hsphere/WEB-INF/web.xml` - XML configuration file where CP servlet configuration is set;
- `/hsphere/local/home/cpanel/apache/etc/mod_jk.conf` - `mod_jk` configuration. `mod_jk` is a Tomcat-Apache plug-in that handles the communication between Tomcat and Apache. For more details, see Apache documentation on `mod_jk` (http://jakarta.apache.org/tomcat/tomcat-3.3-doc/mod_jk-howto.html).

Tomcat Log File

Tomcat log file is `/hsphere/local/home/cpanel/jakarta/logs/catalina.out`.
 Jakarta connector log is `/hsphere/local/home/cpanel/apache/logs/mod_jk.log`.

Restarting Tomcat

➤ **To stop Tomcat:**

Run:

```
/hsphere/local/home/cpanel/jakarta/bin/catalina.sh stop
```

➤ **To start Tomcat:**

Run:

```
/hsphere/local/home/cpanel/jakarta/bin/catalina.sh start
```

Tomcat is also restarted when restarting Parallels H-Sphere (Tomcat is restarted together with CP Apache):

```
/etc/init.d/httpdcp restart
```

Note: Sometimes you might need to restart only CP Apache, keeping Tomcat running. Then, use the following option:

```
/etc/init.d/httpdcp restartapache
```

Customizing Tomcat Environment Variables

The file `~cpanel/setenv.sh` is designed to customize Tomcat environment variables.

For example, to allocate Java memory in the range between 64 MB and 512 MB:

1 Log in as `cpanel` user (on page 65).

2 Stop Tomcat as described above.

3 Open `~cpanel/setenv.sh`:

```
-bash-2.05b$ vi ~cpanel/setenv.sh
```

Set the following line in the file:

```
export CATALINA_OPTS="-Xms64M -Xmx512M"
```

4 Start Tomcat. You will see something like this:

```
Using external settings -Xms64M -Xmx512M
+ java version 1.4.x
Using CATALINA_BASE: /hsphere/local/home/cpanel/jakarta
Using CATALINA_HOME: /hsphere/local/home/cpanel/jakarta
Using CATALINA_TMPDIR: /hsphere/local/home/cpanel/jakarta/temp
Using JAVA_HOME: /usr/java/jdk
```

5 Check Java to make sure the custom settings are applied:

```
-bash-2.05b$ ps auwx | grep java

cpanel 3010 99.9 29.6 436776 27652 pts/0 S 05:54 0:09
/usr/java/jdk/bin/java -Xms64M -Xmx512M -
Djava.awt.headless=true -
Djava.endorsed.dirs=/hsphere/local/home/cpanel/jakarta/common/
endorsed -classpath
/usr/java/jdk/lib/tools.jar:/hsphere/local/home/cpanel/jakarta
/bin/bootstrap.jar:/hsphere/local/home/cpanel/j
cpanel 3020 0.0 0.7 3680 664 pts/0 S 05:54 0:00 grep java
```

Running Java Command Line Tools

This document lists java command line tools that come with the standard Parallels H-Sphere installation.

IMPORTANT: Before running a Java tool, make sure to log into CP server as the `cpanel` user: `su -l cpanel`

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DNSCreator

NAME: psoft.hsphere.tools.DNSCreator - Parallels H-Sphere DNS zones recreator.

USAGE: java -Xms64M -Xmx512M psoft.hsphere.tools.DNSCreator -m creation_method [-dz] -z zonename

OPTIONS:

-m| creation method. Possible values: db or rand:

- db - pick NS servers as they are defined in the Parallels H-Sphere database
- rand - pick NS servers randomly

-dz|--delete_zones - delete zones first. Add this option only if such zones already exist. With this option, DNS creation will take at least twice more time.

-lids|--logical-servers - process zones which are on the logical servers with the specified IDs. (This option makes sense if you have more than four logical name servers with clearly defined Used By roles.)

-pip|--pServerIP - specifies a physical server by its primary IP. All necessary logical server IDs are chosen automatically. Often -pip is used as an alternative to -lids.

-z|--zone - recreate only one specified zone. Without this option, all zones will be recreated.

Note: If both lids and -z parameters are specified, the -z parameter will be ignored.

The tool also accepts zone names separated by line breaks:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.DNSCreator -m creation_method [-dz] < filename
```

where filename is the name of the file which contains zone names separated by line breaks.

DNS Creator is used in Single DNS Configuration (on page 201), Changing IPs on Systems Using NAT (on page 40), Moving DNS (on page 205) and in Moving Mail Accounts (on page 191).

IPMigratorFast

NAME: psoft.hsphere.tools.IPMigratorFast - Parallels H-Sphere IP migration utility

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.IPMigratorFast [options] ipmigration.
```

OPTIONS:

--help - shows this screen

--ip-change - change IP

--repost-configs - repost IP dependemd resources

--recreate-zone - change and repost DNS records

--service-zone - change service zone server IP

--custom-rec - process service DNS records

--lServerIds=, , . . . , - to specify logical server ids

--repost-cp-ssl - Repost SSL CP VHost configs

--clear-old-ips - remove old ips from database and servers

PhysicalCreator

Physical Creator is a java class that generates web hosting resources and configurations on web, win, and mail servers using the data in the Parallels H-Sphere system database. This utility is used to recover and migrate user accounts. It is included into standard Parallels H-Sphere installation.

➤ **To run Physical Creator:**

- 1 Log into the control panel server as `cpanel` (on page 65).
- 2 Back up the content of the `~cpanel/shiva/psoft/` directory.
- 3 Run Physical Creator:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PhysicalCreator
OPTIONS
```

where:

- `Xms64M` - recommended minimum memory for this process

`Xmx512M` - recommended maximum memory for this process `OPTIONS`:

- `-h|--help` - shows the list of available options
- `-rg|--rgroup` - resource group to perform operations with The following resource groups are allowed:
 - `unixweb` - Unix virtual hosting resources
 - `winweb` - Windows virtual hosting resources
 - `mysql` - MySQL resources
 - `mail` - Mail resources
- `-co|--create-only` - performs creation resources routines only
- `-do|--delete-only` - performs delete resources routines only
- `-rc|--recreate` - performs both delete and creation resources routines
- `-lid|--lserverId` - process accounts on logical server with given number
- `-accs|--accounts` - account IDs separated by comma, e.g.:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PhysicalCreator
-rg winweb -co -lid 26 -accs 1725895 > creator.log 2>&1 &
```

- `-st|--start-from` - account ID. Process will start from this account ID. E.g.:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PhysicalCreator
-rg winweb -co -lid 26 -st 1590055 > creator.log 2>&1 &
```

Here is another example of the entire command:

```
bash-2.05a$ java psoft.hsphere.tools.PhysicalCreator -rg
unixweb -co -lid 25
```

This command will create:

- empty home dirs

- default configuration of FTP and HTTP virtual hosts on unix logical server with ID 25

If PhysicalCreator hangs on one of the accounts, kill it, debug the issue, and then resume the process starting with this account, e.g.:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PhysicalCreator -rg
winweb -co -lid 26 -st 1590055 > creator.log 2>&1 &
```

- 4 Restore the backup of the `~cpanel/shiva/psoft/` directory to the original (recovery) or target (move) location.
- 5 Restart Parallels H-Sphere (on page 54).

PostApacheConfigs

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PostApacheConfigs [-lid n ] [
-ic ]
```

- `-lid|--lserverid n` work only on accounts on logical server with passed number
- `-ic|--initcontent` initialize content
- `-h|--help` print this message

PostFTPConfigs

NAME:

`psoft.hsphere.tools.PostFTPConfigs` - Parallels H-Sphere virtual FTP hosts generator utility

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PostFTPConfigs options
```

OPTIONS:

- `-h|--help` - shows this screen
- `-acc|--accountId number` - process only account with given number
- `-lid|--lserverId` - process only accounts on logical server with given number
- `-all|--all` - process all virtual FTPs

ServerAliasesRenamer

NAME:

`psoft.hsphere.tools.ServerAliasesRenamer`

This Parallels H-Sphere tool recreates server aliases for resellers.

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ServerAliasesRenamer  
[options]
```

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ServerAliasesRenamer
```

OPTIONS:

- `--help` - shows this screen
- `--xml` - run the tool for determined xml file
- `--lserver ...` - run the tool for determined Logical Server IDs

ChangeLServerId

NAME:

psoft.hsphere.tools.ChangeLServerId - changing logical server id in Parallels H-Sphere database

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ChangeLServerId
[options]
```

OPTIONS:

- --help - shows this screen
- -a|--account ACCOUNT_ID -f|--from LOGICAL_SERVER_ID_1 -t|--to LOGICAL_SERVER_ID_2

where

- ACCOUNT_ID - id of the account you want to change;
- LOGICAL_SERVER_ID_1 - id of the logical server you want to change from;
- LOGICAL_SERVER_ID_2 - id of the logical server you want to change to;

SAMPLE:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ChangeLServerId -a 1000 -f 1
-t 2
```

This tool is also used in Moving Mail Accounts (on page 191).

MIVAEmpresaFix

"MIVAEmpresaFix" utility.

- Adds MivaEmpresa resource to the plans
- Adds this resource to users which already have MivaMerchant in use.
- Works for Unix and Windows plans

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.MIVAEmpresaFix
```

KeyPairGenerator

Parallels H-Sphere PGP key pair generator.

USAGE:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.KeyPairGenerator
```

- `-i|--identification` <youridentification string>
- `-s|--subkeyidentification` <your session key identification>
- `-e|--encryptphrase` <phrase for encryption/decryption private key>
- `-prf|--privatekeyfile` <file where private key will be saved>
- `-pcf|--publickeyfile` <file where public key will be saved>

This tool is used in PGP Encryption in Trouble Tickets (on page 111).

PGPEncrypter

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PGPEncrypter
```

- `-m` "This is a message to encrypt"
- `-f` "This is a file where encrypted phrase will be saved"
- `-k` "/path/to/PGP_Public_Key/file"

This tool is used for PGP Encryption in Trouble Tickets (on page 111).

PGPMessageSigner

Misconfiguration Parallels H-Sphere PGP message signer.

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PGPMessageSigner
```

- `-m|--message` <Message to sign> or `-mf|--messagefile` </path/to/file/with/message/to/sign>
- `-f|--file` </path/to/file/for/signed/message>
- `-k|--key` </path/to/private/key/file>
- `-p|--codephrase` <private code phrase>

PGPMessageVerify

Misconfiguration Parallels H-Sphere PGP message verify.

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PGPMessageVerify  
-f|--messagefile </path/to/file/for/signed/message>  
-k|--key </path/to/public/key/file>
```

RepostResellerSSLConfigs

NAME:

psoft.hsphere.tools.RepostResellerSSLConfigs This Parallels H-Sphere tool recreates virtual host config files for resellers.

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.RepostResellerSSLConfigs  
[options]
```

OPTIONS:

--help - shows this screen

--process - run the tool for all config files

--reseller <res_name_1> <res_name_2>...<res_name_n> - run the tool for determined reseller user names.

ServiceZoneRenamer

Utility for changing service zone name. Changes zone name, LServers names, rebuilds DNS.

WARNING: USE ONLY ON EMPTY INSTALLATION OF H-SPHERE.

Usage:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ServiceZoneRenamer -oz  
zone_name -nz
```

zone_name

- -oz|--old_zone Name of the currently present service zone
- -nz|--new_zone Name which should be set to service zone

BillingEraser

Permanently erases billing history of accounts. Before running this utility, stop Parallels H-Sphere and back up Parallels H-Sphere system database.

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.BillingEraser --accounts  
list_of_account_ids --resellers list_of_reseller_ids
```

NOTE:

- When --resellers option is used, the utility erases billing history for the specified reseller and all his users.
- There is no possibility to do it only for a reseller account (without touching users).
- Using --accounts and --resellers parameters simultaneously is disabled.
- Specified accounts and reseller ids are delimited with commas.

SetQuota

NAME:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.SetQuota
```

This Parallels H-Sphere tool resets quota on a web box according to the data found in Parallels H-Sphere DB for each account located on each logical server.

SYNOPSIS:

```
psoft.hsphere.tools.SetQuota [options]
```

OPTIONS:

--help - shows help

-lid|--lserverid - process accounts located on Logical Server with specified ID only

UrchinReconfig

NAME:

psoft.hsphere.tools.UrchinReconfig - Regenerate Urchin config. Used, for example, after account migration to restore Urchin settings for moved domains.

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.UrchinReconfig [options]
```

OPTIONS:

--help - shows help

-a|--accounts - list of account IDs delimited with ',', or 'all' for all accounts

-s|--servers - list of logical server IDs delimited with ',', or 'all' for all servers

SAMPLE:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.UrchinReconfig -a  
'1002,8383,1237' -s '12,35,37'
```

```
java -Xms64M -Xmx512M psoft.hsphere.tools.UrchinReconfig -a all -s all
```

OffLogs

```
-bash-2.05b$ java -Xms64M -Xmx512M psoft.hsphere.tools.OffLogs --help
```

NAME:

```
psoft.hsphere.tools.OffLogs - Regenerate users' logs and stats config
```

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.OffLogs [options]
```

OPTIONS:

- --help - shows this screen
- -a|--accounts list of account IDs, or all for 'all' accounts, ','
- - delimiter -s|--servers list of logical server IDs, or 'all' for all servers, ','
- - delimiter -e|--errorlog re-generate errorlog only
- -ag|--agentlog re-generate agentlog only
- -r|--referrerlog re-generate referrerlog only
- -t|--transferlog re-generate transferlog only
- -w|--webalizer re-generate webalizer only
- -m|--modlogan re-generate modlogan only
- -aw|--awstats re-generate awstats only

SAMPLE:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.OffLogs -a '1002,8383,1237' -s '12,35,37'  
java -Xms64M -Xmx512M psoft.hsphere.tools.OffLogs -a all -s all  
java -Xms64M -Xmx512M psoft.hsphere.tools.OffLogs -s 24 -aw -w
```


Reset Balance

NAME:

```
psoft.hsphere.tools.ResetBalance
```

This Parallels H-Sphere tool resets billing balance using different criteria. By default, the tool runs only in information mode. To fix balances, run utility with `--process` option.

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.ResetBalance options
```

OPTIONS:

`-h|--help` - shows this screen

`-acc|--accountId number` - process only accounts with given number

`-all|--all` - process all accounts

`-b|--balance <ld balance>` - process accounts with balance equal to <balance for process>

`-n|--newbalance <new balance>` - set balance to <balance for process>

`-d|--description - <credit description>` - notes which will be added to credit operation

`--process` - to force process, otherwise only affected accounts will show

RegenerateIpsFile

NAME:

```
psoft.hsphere.tools.RegenerateIpsFile
```

This Parallels H-Sphere tool regenerates file `/hsphere/local/network/ips` on Unix physical box

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.RegenerateIpsFile options
```

OPTIONS:

- `--help` - shows this screen
- `-all` - regenerate on all physical boxes
- `-pid` - regenerate on physical servers with specified IDs

LicenseExtractor

A tool to import License info to a file or print it to console screen.

NAME:

```
psoft.hsphere.tools.LicenseExtractor
```

Imports License info to a file or prints it to console screen.

SYNOPSIS:

```
java psoft.hsphere.tools.LicenseExtractor [options]
```

OPTIONS:

--help - shows this screen

--file </path/to/file>

</path/to/file> - absolute path to the file and file name where license info will be imported;

without options - shows license info to console screen.

VPSConvertor24_25

A tool to convert VPS plans and accounts during the update from Parallels H-Sphere 2.4.x to Parallels H-Sphere 2.5 and up.

NAME:

```
psoft.hsphere.tools.VPSConvertor24_25
```

Converts VPS plans and accounts during the update from Parallels H-Sphere 2.4.x to Parallels H-Sphere 2.5 and up

SYNOPSIS:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.VPSConvertor24_25 [options]
```

OPTIONS:

--help - show this help

--all - convert all VPS plans and accounts (recommended)

EXAMPLE:

```
su -l cpanel  
java -Xms64M -Xmx512M psoft.hsphere.tools.VPSConvertor24_25 --all
```

Important: VPS converter leaves mail quota value blank in converted plans. To add DNS zones to VPS accounts afterwards, please make sure you set mail quota value in the plan.

MailRelayCorrector

If you've updated Parallels H-Sphere to 3.1 Beta 1, run this tool to create virtual users for every mail resource: mailbox, alias, forward, autoresponder, mailing list, and mail sms if mail relay is enabled for mail domain.

NAME:

`psoft.hsphere.tools.MailRelayCorrector`

Processes all mail resources (mailbox, forward, alias, autoresponder, mailing list, sms) for maildomains with enabled mail relays and creates vitrtual users for each of them.

USAGE EXAMPLES:

```
java -Xms64M -Xmx512M psoft.hsphere.tools.MailRelayCorrector -a
1233,1254
java -Xms64M -Xmx512M psoft.hsphere.tools.MailRelayCorrector -lid 7
java -Xms64M -Xmx512M psoft.hsphere.tools.MailRelayCorrector -d
my_maildomain.com
java -Xms64M -Xmx512M psoft.hsphere.tools.MailRelayCorrector --all
```

OPTIONS:

- `-h|--help` - shows this screen
- `--all` or without any parameter - process all accounts
- `-a|--accounts` - process accounts' IDs separated by comma
- `-lid|--lserverId` - process accounts on logical server with given number
- `-d|--domains` - process domains separated by comma

Securing Your CP Server with SSL

This document gives a step-by-step instruction on how to secure your CP apache server with a regular SSL certificate.

Note: You can secure your control panel with a wildcard certificate if you install it on the same domain name. For example, if your cp domain name is `cp.example.com`, you can secure it by installing wildcard certificate to `example.com`.

We recommend that you configure your system to be accessible both by http and https, because Parallels SiteStudio does not fully support https protocol.

➤ **To secure your CP with regular SSL:**

- 1 Create or choose a directory to store SSL-related files. E.g.:

```
#mkdir cert
```

Make this directory available only for root:

```
#chmod 700 cert
```

Go to this directory:

```
#cd cert
```

- 2 Generate an SSL private key with the OpenSSL utility:

```
#openssl genrsa -des3 -out server.key 1024
```

When prompted for a pem phrase, enter any combination of 4 characters, e.g. 1234. A unique private key will be generated into the `server.key` file.

For more, read modssl documentation (http://www.modssl.org/source/mod_ssl-2.8.16-1.3.29.tar.gz).

- 3 Copy this file to a secure location. You will need it later.
- 4 Make the newly generated file readable only by root:

```
#chmod 600 server.key
```

- 5 To view the content of the private key file, use the command:

```
#openssl rsa -noout -text -in server.key
```

- 6 Remove pass phrase from the private key:

```
#openssl rsa -in server.key -out server.key.unsecure
```

- 7 Now you don't need the private key with the pass phrase any more. Overwrite it with the private key without the pass phrase:

```
#cp server.key.unsecure server.key
```

- 8 Generate an SSL certificate signing request based on the private key:

```
#openssl req -new -key server.key -out server.csr
```

You will have to answer many questions related to your company. Your answers are required to be included in the certificate.

Note: *Common name* is the URL at which you want your control panel to be available, e.g. `cp.yourdomain.com` (not `yourdomain.com`).

9 Check the content of the certificate request file:

```
#openssl req -noout -text -in server.csr
```

If you find a mistake in the data you have submitted, you can re-generate the request anew.

10 Make sure to back up your SSL files:

```
# mkdir backup
# chmod 700 backup
# cp *.* backup/
```

11 Send the generated CSR file to a trusted Certificate Authority for signing. They will send you back the certificate. Save it as `server.crt`.

12 To view the content of the certificate, run:

```
# openssl x509 -noout -text -in server.crt
```

13 Save the private key and the certificate:

```
# cp -f ./server.key
/hisphere/local/home/cpanel/apache/etc/ssl.key/
# cp -f ./server.crt
/hisphere/local/home/cpanel/apache/etc/ssl.crt/
```

14 Important: Make sure to back up the `ssl.key` and `ssl.crt` files to a safe location. You may need them in the future.

15 If your certificate was signed by a non-trusted certificate authority, run the following command:

```
# cp -f ./ca-bundle.crt
/hisphere/local/home/cpanel/apache/etc/ssl.crt/
```

16 If your certificate doesn't require chain certificate, skip this item. Otherwise, do the following:

a Store chain certificate in file:

```
/hisphere/local/home/cpanel/apache/etc/ssl.crt/ca.crt
```

b Create custom CP apache config template if you do not have any (see Appendix C of Parallels H-Sphere Installation Guide)

c Add line (according to Step 2 "Edit template" in the above mentioned document):

```
SSLCertificateChainFile
/hisphere/local/home/cpanel/apache/etc/ssl.crt/ca.crt
```

to file:

```
/hisphere/local/home/cpanel/apache/etc/httpd.conf.tpl.custom
```

17 Open the file `hsphere.properties`:

```
# vi
/hisphere/local/home/cpanel/shiva/psoft_config/hsphere.properties
```

and change lines:

```
CP_PORT = 8080
CP_PROTOCOL=http://
```

to:

```
CP_PORT = 8443
CP_PROTOCOL=https://
```

18 Restart Parallels H-Sphere (on page 54).

19 Check the log file:

```
# vi /hsphere/local/home/cpanel/apache/logs/ssl_engine_log
```

Now your control panel must be available at both

<http://cp.yourdomain.com:8080> and <https://cp.yourdomain.com:8443>

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Disabling HTTP Access

We don't recommend disabling HTTP access, because it is required by Parallels SiteStudio. Still, if you have chosen to disable http, do the following:

- 1 Open the file `~cpanel/apache/etc/httpd.conf`
- 2 If you would like to exclude http access and use only secure connections, comment out the line "Listen 8080" in the block
`IfDefine SSL.`
- 3 Restart Parallels H-Sphere (on page 54).

Switching Between IP and Domain Name

You cannot have your control panel available both by domain name and IP address. You can have only one.

➤ **To switch between IP and domain name control panel access:**

- 1 Open the
`/hsphere/local/home/cpanel/shiva/psoft_config/hsphere.properties` file.
- 2 Set the value of `CP_HOST` to your new CP URL/IP. Make sure not to change the value of the `PATH_SITE_STUDIO` property.
- 3 Save and exit the file.
- 4 Restart Parallels H-Sphere (on page 54).

Check for feedback from Parallels H-Sphere owners on how to use Parallels H-Sphere with POP3 SSL, IMAP SSL, SMTP SSL and SFTP:

<http://forum.psoft.net/showthread.php?threadid=3187>.

Upgrading Java

This section explains how to upgrade Java SDK on the Parallels H-Sphere control panel server.

In this section:

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Supported Versions

Linux

It is recommended that Linux owners use the Java SDK 1.4.2 by Sun Microsystems (<http://java.sun.com/j2se/1.4.2/>). This applies to all products in the RedHat Linux product line.

FreeBSD

Java 1.4.2 is implemented on CP server under FreeBSD 4.x. Please update your Parallels H-Sphere to the latest version where you can update Java to 1.4.2.

Upgrade Procedure

You have two alternative ways to upgrade Java. Choose one of the alternatives below.

In this section:

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Manually from Java 1.4.2 SDK by Sun Microsystems (Linux Only)	88

Automatically By Means of Parallels H-Sphere Update Script

➤ *To upgrade Java automatically:*

- 1 Log into the CP server as root:

```
# su -
```

- 2 Download the upgrade package for your Parallels H-Sphere version from <http://download.hsphere.parallels.com>, untar it and execute.
- 3 In the upgrade script interface, type the following option to update Java to 1.4.2:

```
javaupdate
```

This will update your Java to 1.4.2 and will also update your Parallels H-Sphere Java classes.

Manually from Java 1.4.2 SDK by Sun Microsystems (Linux Only)

➤ *To upgrade Java manually:*

- 1 Log into the CP server as root:

```
# su -
```

- 2 Stop Parallels H-Sphere:

```
# /etc/rc.d/init.d/httpdcp stop
```

- 3 Stop all java processes on your system:

```
# killall java
```

- 4 Set up Java JDK 1.4.2 following the instructions by Sun Microsystems (<http://java.sun.com/j2se/1.4.2/install-linux.html>).

- 5 Update symlink `/usr/java/jdk/` to point to your installation, for example to `/usr/java/jdk1.4.2_06`.

If you don't have the `/usr/java/jdk/` symlink:

1. Create it to point to your installation.

2. In the file
`/hsphere/local/home/cpanel/apache/etc/jserv/jserv.properties`, set the following:

```
wrapper.bin=/usr/java/jdk/bin/java
wrapper.classpath=/usr/java/jdk/jre/lib/rt.jar
```

- 6 Skip this step if you don't run Parallels SiteStudio.

Open the file `/hsphere/shared/SiteStudio/imaker.sh` and check if it has the line:

```
JAVA_HOME=`su -l cpanel -c 'echo $JAVA_HOME'`
```

If it doesn't, update the JAVA_HOME parameter in this file, e.g.:

```
JAVA_HOME=/usr/java/jdk1.4.2
```

- 7 To ensure correct work with OpenSRS, download the "Unlimited Strength" Jurisdiction Policy Files from <http://java.sun.com/products/jce/index-14.html#UnlimitedDownload>. The files for version 1.4.2 can be downloaded from page <http://java.sun.com/j2se/1.4.2/download.html#docs>, section "Other Downloads". Put the files in the directory `JAVA_HOME/jre/lib/security` where `JAVA_HOME` is the Java SDK home directory.
- 8 Upgrade to one of the latest versions of Parallels H-Sphere.
- 9 Start Parallels H-Sphere:

```
# /etc/rc.d/init.d/httpdcp start
```

Converting Parallels H-Sphere System Database from MS SQL to PostgreSQL

PostgreSQL is the only supported format for the Parallels H-Sphere system database. The conversion procedure suggested in this section takes two steps listed below.

In this section:

- | | |
|--|----|
| Step 1. Convert Database from MSSQL Server to MySQL | 90 |
| Step 2. Convert Database from MySQL Server to PostgreSQL | 91 |

Step 1. Convert Database from MSSQL Server to MySQL

➤ *To Convert database from MSSQL to MySQL:*

1 Rename the following fields:

- `table esc_rules: rename interval to interval2`
- `table revenue: rename usage to usage2`

This must be done to avoid conflicts in MySQL, and must be changed back in the MySQL dump.

2 Download the `mssql2mysql.exe` convertor from

http://download.hsphere.parallels.com/shiv/db_convert/mssql2mysql.exe

3 Start `mssql2mysql.exe` and configure setting for MSSQL/MySQL servers (hosts, usernames, passwords, new database name for mysql) and save settings.

If you get warnings about missing componenets, download and run the MtaEdt22.exe utility from

http://download.hsphere.parallels.com/shiv/db_convert/MtaEdt22.exe. It will download and set up all missing components.

4 Click `Connect` to connect to mssql database and select the database to convert.

5 Select all necessary tables or press `Select All` to select all tables

6 Click `Start` to start database conversion

7 To see the database after the conversion:

`mysql hsphere_mysql` (for example)

Step 2. Convert Database from MySQL Server to PgSQL

Execute all suggested queries in one transaction. Replace PG_HOST_NAME with the name of the host where PgSQL server is running, like `example.com`.

- 1 Download the mysql/pgsql dump convertor archive from http://download.hsphere.parallels.com/shiv/db_convert/my2pg.tgz and unpack it:

```
tar zxvf my2pg.tgz
```

- 2 Dump tables and data from mysql:

```
mysqldump.exe hsphere_mysql > hsphere_dump
```

- 3 As the result, you will get a MySQL dump with table structure and data (hsphere_dump)

- 4 In MySQL dump, rename the following fields:

- table `esc_rules`: rename `interval2` to `interval`
- table `revenue`: rename `usage2` to `usage`

- 5 Convert mysql dump to pgsql dump:

```
my2pg.pl hsphere_dump > hsphere_pgsql
```

As the result, you will get a converted dump (hsphere_pgsql)

- 6 Replace `TIMESTAMP` to `TIMESTAMP WITH TIME ZONE`.

- 7 If the database already exists, delete it:

```
dropdb -h PG_HOST_NAME -U wwwuser hsphere_pgsql
```

- 8 Create a new (empty) database:

```
createdb -h PG_HOST_NAME -U wwwuser hsphere_pgsql
```

- 9 Restore the database from dump (tables and data):

```
psql -h PG_HOST_NAME -d hsphere_pgsql -U wwwuser -f  
hsphere_pgsql > migrate_errors
```

-d - database name

-f - file with dump

As a result, you will see conversion results in the `migrate_errors` file.

- 10 Connect to the database and check all tables and data:

```
psql -h PG_HOST_NAME -d hsphere_pgsql -U wwwuser
```

- 11 For each record of the sequences table, run the following two commands against the Postgres DB:

```
CREATE SEQUENCE "<seq_name>" start <id>;  
SELECT nextval ('<seq_name>');
```

For example, for the record `newid` -> 276488, execute the following SQL statements:

```
CREATE SEQUENCE "newid" start 276488;  
SELECT nextval ('newid');
```

Upgrading System Postgres

This document explains how to update your system and user PostgreSQL from version 7.3.x to version 7.4.7 which is faster, uses server memory more effectively, and includes security fixes.

Important: If your PostgreSQL version is lower than 7.3, please upgrade it to v. 7.3 first.

➤ **To check your PostgreSQL version:**

- 1 Log into your control panel server as root:

```
su -
```

- 2 Execute:

```
psql --version
```

This update includes the following:

- PostgreSQL Security Release for 7.4.7, <http://www.postgresql.org/about/news.281>
- Postgres server and client software updates, including:
 - perl client library on all boxes (install if missing)
 - server software with data conversion to the current version format
 - FreeBSD eliminated PL/PgSQL parser vulnerability to buffer overflows (<http://www.freebsd.org/ports/portaudit/6b4b0b3f-8127-11d9-a9e7-0001020eed82.html>).

Make sure that your system satisfies the following requirements:

- Current PostgreSQL updated to version 7.3.
- hisphere database converted to UNICODE (on page 94).

IMPORTANT: You are highly recommended to backup your databases into a directory other than Postgres home directory so you do not lose data if anything goes wrong.

➤ **To upgrade system Postgres:**

- 1 Log into your control panel server as root:

```
su -
```

- 2 Download the PostgreSQL 7.4.7 upgrade script from the downloads site:

For Linux:

```
wget http://download.hisphere.parallels.com/shiv/HS/u-pgsql-7.4.7.tar.gz
```

For FreeBSD:

```
fetch http://download.hisphere.parallels.com/shiv/HS/u-pgsql-7.4.7.tar.gz
```

- 3 Unpack the archive:

```
tar -zxvf u-pgsql-7.4.7.tar.gz
```

- 4 Enter the unpacked directory:

```
cd u-pgsql-7.4.7
```

- 5 To upgrade all PostgreSQL servers, run the `update.sh` script:

```
sh update.sh
```

To run the script and view the messages that appeared during installation, run the following command:

```
sh update.sh | tee update.log
```

It will copy the messages to the log file.

Note: If the script runs into an error on a user database server, you are notified of it, the script skips the box and turns to the next one. When you are through with the update, see `recover-howto-eng.txt` file to learn how to recover the box that hasn't got updated. When you fix the error, you'll need to update this box manually.

Converting Parallels H-Sphere Database To UNICODE

The system database must be in UNICODE (UTF-8).

➤ **To convert your database to Unicode:**

1 Stop the control panel

Log in as root and stop the control panel:

For Linux:

```
/etc/rc.d/init.d/httpdcp stop  
killall -9 java
```

For FreeBSD:

```
/usr/local/etc/rc.d/apachecp.sh stop  
killall -9 java
```

2 Find out your current database encoding

Type:

```
su -l cpanel -c 'psql hisphere'  
hsphere# \encoding
```

If the encoding is UNICODE (UTF-8), you have found what you need. If not, the next step is to dump Parallels H-Sphere system database.

3 Dump Parallels H-Sphere system database

1. Create and enter backup directory:

```
mkdir pg_backup  
cd pg_backup
```

2. Get the password for `wwwuser`. You'll need it to query the database:

```
cat ~cpanel/shiva/psoft_config/hsphere.properties | grep PASS
```

3. Dump Parallels H-Sphere system database.

Export schema:

```
pg_dump -u -s -f schema.db hisphere  
chmod 600 schema.db  
cp -p schema.db schema_backup.db
```

Export data:

```
pg_dump -u -a -f data.db hisphere  
chmod 600 data.db  
cp -p data.db data_backup.db
```

Notes:

1. If your system database is large, the dump can take several hours to complete. You can speed it up by setting

```
fsync=off
```

in `postgresql.conf`. When you are done, unset this option back for safety reasons.

2. The dump file is created with 644 permissions by default; you need to set more secure 600 permissions to prevent the data from being read by other users.
4. For additional security, you may disallow access to the backup directory for all other users:

```
chmod 700
```

4 Convert the dump to UNICODE.

Convert the dump into Unicode with the `iconv` utility.

Linux:

```
iconv --from-code=<REGIONAL_ENCODING> --to-code=UTF-8 -o
utf_data.db data.db
mv utf_data.db data.db
```

FreeBSD:

```
iconv -f <REGIONAL_ENCODING> -t UTF-8 data.db > utf_data.db
mv utf_data.db data.db
```

If your dump file exceeds 2GB:

1. Split it into smaller files, 1GB each:

```
split -b 1024m data.db data_db
```

2. Run `iconv` for each of these files to convert them to UNICODE:

```
iconv --from-code=<REGIONAL_ENCODING>--to-code=UTF-8 -o
utf_data_db.aa data_db.aa
iconv --from-code=<REGIONAL_ENCODING>--to-code=UTF-8 -o
utf_data_db.ab data_db.ab
...
```

3. Join them back into `data.db`:

```
cat utf_data_db.aa utf_data_db.ab utf_data_db.ac ... > data.db
```

Here, `<REGIONAL_ENCODING>` is the source encoding. For example, for native US English encoding:

Linux:

```
iconv --from-code=ISO-8859-1 --to-code=UTF-8 -o utf_data.db
data.db
```

FreeBSD:

```
iconv -f ISO-8859-1 -t UTF-8 data.db > utf_data.db
```

The resulting `data.db` file will contain the data converted to Unicode.

For better security, run the following command:

```
chmod 600 data.db
```

5 Save the `postgres` directory in a backup location.

1. Stop the database:

For Linux:

```
/etc/rc.d/init.d/postgresql stop
```

For FreeBSD:

```
/usr/local/etc/rc.d/010.pgsql.sh stop
```

2. Save the postgres directory:

For Linux:

```
cp -pR ~postgres/data ./
```

For FreeBSD:

```
cp -pR ~pgsql/data ./
```

3. Start the database:

For Linux:

```
/etc/rc.d/init.d/postgresql start
```

For FreeBSD:

```
/usr/local/etc/rc.d/010.pgsql.sh start
```

6 Recreate Parallels H-Sphere database.

1. Delete old Parallels H-Sphere database:

```
# su -l cpanel
$ dropdb hsphere
```

2. Create database:

```
createdb -E UNICODE -U wwwuser hsphere
```

3. Create Parallels H-Sphere DB schema:

```
psql -q -U wwwuser -f schema.db hsphere
```

4. Import Parallels H-Sphere system data:

```
psql -q -U wwwuser -f data.db hsphere
```

Note: If you face problems with importing data, please see the Troubleshooting (on page 97) section in CP Acceleration guide.

5. If you added

```
fsync=off
```

to postgresql.conf, don't forget to delete it.

6. Start the Control Panel (on page 54).

Accelerating Control Panel

When your Control Panel is slow or you have high CPU/memory load, you can do a few steps to accelerate its performance.

In this section:

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Optimizing Parallels H-Sphere System Database.....	99
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Parallels H-Sphere Java-related Issues

1. Tomcat Optimization

Customize Tomcat environment variables (on page 66).

2. NFU Cache Optimization

NFU cache parameters have to be set depending on your server memory size and the number of accounts and domains in your system. If a lot of new accounts/domains are added to Parallels H-Sphere, we recommend to reconfigure NFU cache.

➤ *To reconfigure NFU cache:*

- 1 Stop the Control Panel.
- 2 Set NFU parameters in `hsphere.properties`.

Check `hsphere.log` for NFU messages:

```
grep NFU /var/log/hsphere/hsphere.log
```

You would receive the lines like these:

```
2003-02-26 08:08:29,190 [Thread-11] DEBUG psoft.hsphere.CP -
Resource NFU cache:initial size:5000 size:142 max size:5000
rate:0.0
2003-02-26 08:08:29,190 [Thread-11] DEBUG psoft.hsphere.CP -
ResourceId NFU cache:initial size:25000 size:161 max
size:25000 rate:0.87
2003-02-26 08:08:29,190 [Thread-11] DEBUG psoft.hsphere.CP -
SharedObject NFU cache:initial size:5000 size:0 max size:5000
rate:0.0
```

Here, you should pay attention to the "size" and "rate" parameters. If the "initial size" is close to the "max size" and rate is lower than 0.75, it is appropriate to increase the size of NFU cache. For this, you need to insert two parameters to `hsphere.properties`:

```
NFU_CACHE_MULTIPLIER = 5  
NFU_CACHE_MULTIPLIER_MAX = 10
```

In this example, cache size would increase five times, and if necessary (e.g., for accounting) it could be increased ten times.

3 Start the Control Panel.

Optimizing Parallels H-Sphere System Database

To optimize the system database, perform operations listed in this section.

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Converting Bigint to Int4

Skip this procedure if you have already performed it.

Postgres migration from int8 to int4 is very effective if you host more than 500 accounts. (By default, Postgres can't index fields of the int8 type.)

You need to perform it once at any time.

For this procedure, find the partition with sufficient amount of free space.

- 1 Stop the Control Panel (check `hsphere.log` that no crons are running)
- 2 Export schema:

```
pg_dump -u -s -f db_old.db hsphere
chmod 600 db_old.db
cp db_old.db db.db
```

Note: dump file is created with 644 permissions by default; you need to set more secure 600 permissions to prevent the data from being read by other users.

- 3 Convert int8 to int4:

```
vi db.db
```

In vi editor, change every instance of bigint and int8 to int4 by typing the following commands:

```
%s/bigint/int4/g
%s/int8/int4/g
```

- 4 Then, still editing `db.db` in vi, change type back to int8 for the `ip_num` column in the `l_server_ips` table and its index.
 - a find the `ip_num` definition in the `CREATE TABLE "l_server_ips" (...) ;` command:

```
ip_num int4 NOT NULL
```

- and change `int4` to `int8`;

- b find the index creation command:

```
CREATE INDEX "l_server_ips_numkey" on "l_server_ips" using  
btree ( "ip_num" "int4_ops" );
```

- and change `int4_ops` to `int8_ops`.

5 Export Data:

```
pg_dump -u -a -f data.db hsphere  
chmod 600 data.db
```

Note: dump file is created with the 644 permissions by default; you need to set more secure 600 permissions to prevent the data from being read by other users.

6 Recreate DB:

```
dropdb -U wwwuser hsphere  
createdb -U wwwuser hsphere
```

7 Create Schema:

```
psql -q -U wwwuser -f db.db hsphere
```

8 Import Data:

```
psql -q -U wwwuser -f data.db hsphere
```

9 Start the Control Panel.

Updating Moddb

Note: Prior to running `moddb`, update your Parallels H-Sphere to the latest version.

Moddb is one of the scripts included in the Parallels H-Sphere update. However, it is not automatically performed during the Parallels H-Sphere installation. You should launch it manually and only once. To do this:

1 Stop the Control Panel.

2 Make moddb:

1. Download the Parallels H-Sphere update (to the installed version)
2. Run the update script. For example, for the Parallels H-Sphere 2.3.2 Patch 5 update script:

```
#sh ./U23.2P5
```

3. Choose the `moddb` option.

This option will back up old Parallels H-Sphere database and modify Parallels H-Sphere DB scheme (increase some fields length, e.g: email, notes, suspend/resume reason etc.).

Note: You may be prompted for your Parallels H-Sphere DB password under Postgres versions starting from 7.2.x. Enter the password to complete the procedure.

3 Start the Control Panel.

Performing VACUUM

VACUUM should be performed regularly (e.g., once a week). You may put the corresponding script into cron.

Mind, however, that this procedure requires a lot of system resources and creates a high server load.

We recommend you to back up the database before performing vacuumdb. Be careful: if the server gets down during this process, some data may be lost!

To backup your system database, run the hs_bck script:

```
/hsphere/shared/scripts/cron/hs_bck,
```

or

```
cd /hsphere/shared/backup  
./hs_bck hs_bck.cfg
```

Do the following procedure to apply VACUUM to your system:

- 1 Log into the server as root:

```
su - postgres
```

for FreeBSD:

```
su - pgsql
```

- 2 Connect to the database:

```
psql -U wwwuser -d hsphere
```

- 3 Do vacuum:

```
hsphere$ vacuum full;
```

or

```
vacuum analyze;
```

or

```
vacuum;
```

depending on the PostgreSQL server version

Note: vacuum is a time-consuming procedure; it may take up to several hours to complete!

Optimizing Postgres

You can enhance CP productivity by optimizing some Postgres parameters in the `postgresql.conf` file. Default values of these parameters are intended for less powerful workstations, and therefore these values should be significantly increased for better performance on servers with multiple CPUs, large RAM, and with large and intensively used databases.

Consider reconfiguration of the following parameters (please refer to PostgreSQL documentation, <http://www.postgresql.org/docs/7.4/interactive/runtime-config.html>, for details):

- `shared_buffers` - size of shared buffers for the use of Postgres server processes. It is measured in disk pages, which are normally 8kB. Default value is 64, i.e., 512 kB RAM. We recommend increasing this parameter:
 - for middle-size database and 256-512 MB available RAM: to 16-32 MB (2048-4096)
 - for large database and 1-4 GB available RAM: to 64-256 MB (8192-32768)
- `sort_mem` - size of RAM allocated for sorting query results. Measure unit is 1kB. Default value is 1024. We recommend setting this parameter to 2-4% of available RAM.
- `wal_buffers` - size of the transaction log buffer. Measure unit is 8kB. Default value is 8. It can be increased to 256-512 for better processing of complex transactions.
- `max_connections` - the maximum number of connections to a database at a time. Default value is 32. We recommend increasing it to at least 64.
- `checkpoint_segments` - maximum distance between automatic WAL (Write-Ahead Log) checkpoints. Measured in log file segments (each segment is normally 16 megabytes). Default value is 3. We recommend increasing this parameter if data is being actively accessed and modified.
- `checkpoint_timeout` - maximum time for transaction, in seconds. Default value is 3000. We recommend increasing this parameter at least 10 times.
- `effective_cache_size` - sets the optimizer's assumption about the effective size of the disk cache. Measure unit is 8kB. Default value is 1000. If you have enough memory, we recommend setting this parameter to 25-50% of available RAM.

WARNING: For FreeBSD, **kernel recompilation** is required before changing memory usage parameters in `postgresql.conf`! Read Managing Kernel Resources, <http://www.postgresql.org/docs/7.4/interactive/kernel-resources.html>, in PostgreSQL documentation.

➤ ***To reconfigure Postgres parameters:***

- 1 Stop Postgres.
- 2 Modify the `~postgres/data/postgresql.conf` file (in Parallels H-Sphere 2.5 and up, modify its custom template as described in Appendix C of Parallels H-Sphere Installation Guide).

Here is an example of PostgreSQL configuration for a server with 4 CPUs, 4GB RAM, with 2.5 GB database dump and a separate hard drive allocated for transaction logs:

```
sort_mem = 131072
shared_buffers = 262144
max_connections = 64
wal_buffers=1000
checkpoint_segments = 9
checkpoint_timeout = 3600
effective_cache_size = 100000
```

- 3 Start Postgres and make sure it's working properly. If parameters are incorrect, Postgres might not start. In this case, please also set the SHMALL and SHMMAX kernel parameters according to the rules described in the RedHat documentation at http://www.redhat.com/docs/manuals/database/RHDB-2.1-Manual/admin_user/kernel-resources.html.
- 4 Start Postgres.

In this section:

Moving Transaction Logs to a Separate Hard Drive 103

Moving Transaction Logs to a Separate Hard Drive

If the system database is large (more than 1G), we recommend allocating a separate hard drive for its transaction logs. It is especially helpful for the database migration or recovery (on page 440).

➤ *To move transaction logs to another hard drive:*

- 1 Stop Postgres.
- 2 Mount a new hard drive.
- 3 Move the `data/pg_xlog` directory from the PostgreSQL home directory to the new disk.
- 4 Create the `data/pg_xlog` symlink to the new location in place of the moved directory.
- 5 Start Postgres.

Upgrading Postgres to the Latest Version

See Upgrading System Database (on page 92).

Troubleshooting

Sometimes while importing data you may get the message like this:

```
psql:data.db:527111: ERROR: copy: line 422025, Bad float8 input format
-- underflow psql:data.db:527111: PQendcopy: resetting connection
```

This means that Postgres cannot interpret data it has just exported.

You need to open the data.db file:

```
vi data.db
```

and remove the line which number is calculated in the example above as $N=527111+422025$. This line would contain a float8 number like 1.2e-318. After removing that line, you need to recreate and reload the database.

Changing CP URL

This section tells you how to modify the URL of your control panel.

In this section:

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Changing Entire CP URL.....	106
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Changing IP Address to Domain Name in CP URL

Sometimes, mostly when you have just installed Parallels H-Sphere, you receive the following error while trying to access your Control Panel by domain name:

Control Panel Error

You have entered invalid control panel location. Please enter your account login and password.

In this case, you need to change your hostname to your CP domain name instead of the IP address:

- 1 Log into your CP server as the cpanel user (on page 65).
- 2 Edit the `hsphere.properties` file:

```
vi ~cpanel/shiva/psoft_config/hsphere.properties
```

In the `CP_HOST` field, enter the domain name instead of the IP address.

Important: If you changed the `PATH_SITE_STUDIO` variables in `~cpanel/shiva/psoft_config/hsphere.properties` file to a domain name, make sure to change IP to the domain name in all SS conf files (`/hsphere/shared/SiteStudio/psoft_config/`).

- 3 Restart Parallels H-Sphere (on page 54).

Changing Parallels H-Sphere Port

By default, Parallels H-Sphere is configured to use port 8080, and it is not recommended to use other ports. However, if you still need to change the port:

- 1 Login to CP server as the cpanel user (on page 65).
- 2 Edit `~cpanel/shiva/psoft_config/hsphere.properties`:

```
CP_PORT = <CUSTOM_CP_PORT>
DEFAULT_CP_PORT = <CUSTOM_CP_PORT>
```

If you are running Parallels SiteStudio, also update this line:

```
PATH_SITE_STUDIO = Error! Hyperlink reference not valid.
```

- 3 Edit `/hsphere/local/home/cpanel/apache/conf/httpd.conf` as described in Appendix C of Parallels H-Sphere Installation Guide:

```
Port <CUSTOM_CP_PORT>
```

- 4 If you are running Parallels SiteStudio, update all Parallels SiteStudio configuration files that are located in `/hsphere/shared/SiteStudio/psoft_config/`.

Changing Entire CP URL

Control Panel runs on the Tomcat servlet engine (on page 66) and therefore CP URL pathname configuration differs from that of JServ (on page 58) in previous versions.

A typical Parallels H-Sphere control panel URL looks similar to

`http://example.com:8080/psoft/servlet/psoft.hsphere.CP/`
where:

- `example.com` is the domain name,
- `psoft/servlet` is the mount point,
- `psoft.hsphere.CP` is the servlet name.

- 1 Login to CP server as the cpanel user (on page 65).
- 2 Edit `~cpanel/shiva/psoft_config/hsphere.properties` to change your servlet name and mount point:

```
# old settings -- commented out
# UPLOADER_URL = /psoft/servlet/psoft.hsphere.Uploader
# DOWNLOAD_URI = /psoft/servlet/psoft.hsphere.Downloader
# CP_URI = /psoft/servlet/psoft.hsphere.CP
# CLIENT_CP_URL = psoft.hsphere.CP

# new settings
UPLOADER_URL = /cp/servlet/hsphere.Uploader
DOWNLOAD_URI = /cp/servlet/hsphere.Downloader
CP_URI = /cp/servlet/hsphere.CP
CLIENT_CP_URL = hsphere.CP
```

Important: To avoid problems, please check that the same servlet name and mount point are set in all these parameters! `CP_URI` takes the precedence otherwise.

- 3 Logout from cpanel back to root and run the `jakarta_servlet_upt.pl` script to apply the new servlet name and mount point to the Tomcat configuration files (on page 66) and to the index page template `~cpanel/shiva/shiva-templates/index.html`:

```
cd ~cpanel/shiva/psoft_config
./jakarta_servlet_upt.pl
```

The script replaces old servlet name and mount point in the following files:

```
~cpanel/hsphere/WEB-INF/web.xml
~cpanel/apache/etc/mod_jk.conf
~cpanel/jakarta/conf/server.xml
~cpanel/shiva/shiva-templates/index.html
```

Original configuration files are backed up:

```
~cpanel/hsphere/WEB-INF/web.xml.ORG
~cpanel/apache/etc/mod_jk.conf.ORG
~cpanel/jakarta/conf/server.xml.ORG
~cpanel/shiva/shiva-templates/index.html.ORG
```

Important: Don't forget to run this script after the Parallels H-Sphere update to apply your CP URL customization in the new version!

- 4 Restart Parallels H-Sphere (on page 54).

Setting Multiple Alternative CP URL's

- *To specify several alternative CP URL's for main Admin CP:*

- 1 Log into your CP server as the cpanel user (on page 65).
- 2 Enter the `hsphere.properties` file:

```
vi ~cpanel/shiva/psoft_config/hsphere.properties
```

- 3 In the CP_HOST field, set several host names using semicolon as separator:

```
CP_HOST=cp.testhost.com;cp.testhost1.com;10.0.1.20
```

- 4 Restart Parallels H-Sphere (on page 54).

Migrating Control Panel Server

By server migration we mean moving applications and data from one server to another while keeping old IPs for the new server.

Note: We highly recommend performing the CP server migration **only if you have practical experience** with Unix-based systems. We will not be responsible for the results of migration.

It is not recommended to erase data on the old server in case you forget to move something or if you need any data from the old server. It is safer to shut down the old server after you check the functionality upon migration.

➤ **To perform Control Panel server migration:**

- 1 Install Parallels H-Sphere Control Panel software on the target server (make sure to use the same Parallels H-Sphere version that is running on the source server).

Note: If your source server is also running Site Studio, make sure to install Site Studio on the target server as well.

- 2 Stop Control Panel (on page 54) on the source server.
- 3 Move the following directories to the new server:

Directory	Files
/hsphere/local/home/cpanel/shiva/psoft_config/	Parallels H-Sphere configuration and properties files
/hsphere/shared/SiteStudio/psoft_config/	Parallels SiteStudio configuration and properties files
/hsphere/local/home/cpanel/apache/etc/	Apache configuration and properties files
/hsphere/local/home/cpanel/shiva/shiva-templates/IMAGES	Control Panel icons and images
/hsphere/local/home/cpanel/shiva/custom	Custom Control Panel templates
/hsphere/shared/SiteStudio/var/websites	Parallels SiteStudio user data
/var/lib/pgsql (<i>Linux</i>) /var/db/pgsql (<i>FreeBSD</i>)	Parallels H-Sphere and Parallels SiteStudio system databases and database settings *
/hsphere/local/home/cpanel/.kb/	Parallels H-Sphere knowledge bases
/hsphere/local/home/cpa	Trouble Ticket system attachments

nel/.attachments/	
/hsphere/local/home/cpa nel/shiva/packages	Parallels H-Sphere Packages

* Before moving postgresql directory, make sure to:

1. Stop postgresql service on the source and target servers.
2. Dump Parallels H-Sphere and Site Studio databases on the source server and then restore them on the target server. Use our documentation (on page 92) for more info.

Note: if you have the same postgresql version on the source and target server, move this directory without dumping.

Alternatively, use rsync to move necessary data to the new server:

```
rsync -arlpogvzt -e ssh $login@$ip:$folder $folder      if you
are using rsync on the target server
rsync -arlpogvzt -e ssh $folder $login@$ip:$folder      if you
are using rsync on the source server
```

Note: \$login usually is root.

4 Switch IPs between the old and new servers.

To find main server IP in Linux, go to:

```
/etc/sysconfig/network-scripts/ifcfg-eth0
```

To find main server IP in FreeBSD, go to:

```
/etc/rc.conf
```

Also, please make sure that main server IPs are excluded from the /hsphere/local/network/IPs file (corresponding IP on the corresponding server).

5 Prevent the startup of Control Panel service on the source server on reboot:

For Linux, run:

```
chkconfig --level2345 httpdcp off
```

For FreeBSD, run:

```
chmod 000 /usr/local/etc/rc.d/apachecp.sh
```

6 Reboot both servers and the router. Router reboot is needed to clear ARP cache. You can also do it using other methods.

7 Check the Control Panel functionality.

If you want to perform Server/IP migration, skip steps 4-6 and follow the instruction on Changing IPs (on page 40) instead.

Generating SSH Keys for Parallels H-Sphere Servers

Parallels H-Sphere Control Panel interacts with its Unix-based servers via SSH protocol. For user to have permanent access to Parallels H-Sphere remote servers and to log into them automatically without entering password each time, the SSH public keys for the cpanel user on the CP box should be copied and added to each Unix box in Parallels H-Sphere cluster.

Normally, Parallels H-Sphere does this automatically during installation. However, sometimes there is a need to regenerate or restore SSH keys. This document will guide you through the process of generating SSH keys on the CP box and adding them to each Parallels H-Sphere server.

➤ **To generate SSH keys:**

- 1 Enter the CP box as the cpanel user (on page 65).
- 2 Check if you have SSH public keys generated for the cpanel user.

RSA:

```
$ cat ~cpanel/.ssh/identity.pub
```

DSA:

```
$ cat ~cpanel/.ssh/id_dsa.pub
```

- 3 If any of these files does not exist, generate missing SSH key for the cpanel user by the corresponding command (passphrases must be empty):

RSA:

```
$ ssh-keygen -t rsa1
```

DSA:

```
$ ssh-keygen -d
```

- 4 Place the public SSH keys of the CP server's cpanel user into the corresponding files in the `/root/.ssh` folder on each Parallels H-Sphere box:

1. Log into an Parallels H-Sphere box as root.
2. Create the authentication key files for root if they don't exist:

RSA:

```
# touch /root/.ssh/authorized_keys
```

DSA:

```
# touch /root/.ssh/authorized_keys2
```

3. Insert the RSA key from the `~cpanel/.ssh/identity.pub` file on the CP server into `/root/.ssh/authorized_keys` on this box, and the DSA key from `~cpanel/.ssh/id_dsa.pub` into `/root/.ssh/authorized_keys2`, respectively.

Encrypting Trouble Tickets

PGP encryption mechanism is implemented in Parallels H-Sphere trouble ticket system to encode and decode secure parts of TT messages.

PGP encryption is implemented on the basis of the Cryptix package (<http://www.cryptix.org/products/openpgp/index.html>). Cryptix is a Java implementation for OpenPGP (<http://www.ietf.org/html.charters/openpgp-charter.html>). Cryptix jar files should be located in the `~cpanel/java_rt` directory and their names should be included into CLASSPATH:

```
cryptix-jce-provider.jar
cryptix-message-api.jar
cryptix-openpgp-provider.jar
cryptix-pki-api.jar
cryptix32.jar
```

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Encrypting Texts With PGP Public Key	112
Using Encrypted Parts in Trouble Tickets.....	112

Generating PGP Public Key and PGP Private Key

To generate a pair of PGP public and private keys, use any PGP encryption program. Or, you may use the `KeyPairGenerator` Java tool integrated into Parallels H-Sphere:

```
java psoft.hsphere.tools.KeyPairGenerator
-i "This is a main identification string"
-s "identification_string_for_subkey"
-e "PGP_Code_Phrase"
-prf "/path/PGP_Private_Key/file"
-pcf "/path/to/PGP_Public_Key/file"
```

Enabling PGP Encryption In Your Support Center

Set **PGP Private Key** and **PGP Code Phrase** in the **Settings/Tech Support** menu in the admin panel to be able to decode encrypted texts directly from TT Administration Center.

Encrypting Texts With PGP Public Key

PGP Public Key should be made available to customers to encrypt their messages.

Information may be encrypted by means of the *PGPEncrypter* Java tool in Parallels H-Sphere:

```
java psoft.hsphere.tools.PGPEncrypter
-m "This is a message to encrypt"
-f "This is a file where encrypted phrase will be saved"
-k "/path/to/PGP_Public_Key/file"
```

Using Encrypted Parts in Trouble Tickets

The following example represents the completely formed message with encrypted information:

```
information is beyond -----BEGIN PGP MESSAGE-----
Version: Cryptix OpenPGP 0.20030205

hQEOA/d04g5fFsn0EAP+LZ+xiV66LWcK/xoRd7aFvUiSnJOZD57hiuACvccPPc2A
eOFELnqdnOcbabXbsG7W7YfYCYfGQzqesOeTfxoO/EX0tB9WGHZ45pzfBYRJC517
F4Olfg0+KES5l1/oEaGgy77jzSPAYfsYDOYnrKW2f0ldIBAk37MnjY4Uk+09I6oD
/3FJxlEF4p2G4lZ1tAFJAHAdgN1TivZQ3cJ24fTd0sFzRbuo2GeirF7jC35Rl7hN
vDwCnqNWIPMPHrs4uAO0svD/nKSDML+LIPCok9YUr+NKj1ECUyXIAzfNK0Oo8nyN
foNzqe3zfY0148yL0gYtDrKR8SPa+ILQv/30Ke7lr1YdpCo9H+U4dLUBNRLkNveK
Ls9MyuleAd20M0Hlm0mxAMGEK2avjHj0dU+PDi8=
=fHh9
-----END PGP MESSAGE----- the invisible
```

In the CP trouble ticket center this message will be displayed as:

```
information is beyond ---BEGIN PGP MESSAGE---secure information---
END PGP MESSAGE--- the invisible.
```

In order to read the encrypted information, click on the link *Click here to access encrypted information*. Decrypted information would appear in a separate window.

The ticket's encrypted part would not be revealed in the reply message received by the customer:

===== CUT HERE =====

Your support request was answered:

Created: Feb 11, 2004 3:27:45 PM

Last Mod: Feb 11, 2004 3:28:02 PM

Assigned To: admin(Admin Account1)

[Feb 11, 2004 3:28:46 PM]

A: Hello

[Feb 11, 2004 3:27:45 PM]

Q: information is beyond | secure information | the invisible.

To learn more about encrypted messages in trouble tickets, please refer to the *Providing Customer Support* documentation in Parallels H-Sphere Service Administrator Guide.

Customizing Domain Registration Lookup Script

Custom domain registration lookup script is

/hsphere/shared/scripts/custom_reg. H-Sphere uses the `whois` command to figure out whether domain is already registered or not. Different domain registration servers respond in different way, so it is almost impossible to keep the script up-to-date to properly support all potential TLD's.

In H-Sphere 3.2 we introduce the built-in /hsphere/shared/scripts/custom_reg with a minimal code. Instead, H-Sphere system administrator will be able to create and customize the /hsphere/shared/scripts/pkg_scripts/custom_reg script. H-Sphere will check if the latter script exists and thus invoke it.

Here is an example of the script:

```
#!/bin/sh
free_domain_pattern="No match for"
if [[ $1 = *.be ]]; then
    free_domain_pattern="Status:\s*FREE"
fi
if [[ $1 = *.mobi ]]; then
    free_domain_pattern="NOT FOUND"
fi
if [[ $1 = *.nl ]]; then
    free_domain_pattern="is free"
fi
if [[ $1 = *.it ]]; then
    free_domain_pattern="Status:\s*AVAILABLE"
fi
if [[ $1 = *.uk ]]; then
    free_domain_pattern="This domain name has not been registered."
fi
if [[ $1 = *.eu ]]; then
    free_domain_pattern="Status:\s*FREE"
```

```
fi
if [[ $1 = *.name ]]; then
    free_domain_pattern="No match."
fi
whois $1 | grep "$free_domain_pattern" 2>&1 >/dev/null; echo $?
```

Web Server

This chapter instructs you on some task you may need to perform on Parallels H-Sphere Unix Web server.

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Understanding Web Server Configuration

The following software is installed on Parallels H-Sphere Unix Web boxes:

Core services:

- Apache Web Server: support of Apache 1.3.x and 2.2.x. PHP comes as separate packages.
- ProFTPd FTP Server (on page 117)

Additional software:

- SSL support: OpenSSL (on page 121)
- PHP (on page 386):
- PHP 4 - all supported Parallels H-Sphere versions;
- PHP 5 - Parallels H-Sphere 2.5 and up.
- Perl (on page 371)
- Third-party log analyzers (on page 122) (Web statistics calculators):
 - Webalizer, ModLogAn, AWStats - included into Parallels H-Sphere default installation
 - Urchin v.3.xx, 4.xx, 5.xx - supported but not included to the installation
- Webshell (on page 126) - Parallels H-Sphere integrated Web directory file manager
- MnoGoSearch (on page 127) - search engine that indexes websites by keywords
- Jail (on page 129) - chrooted shell environment with a set of widely used utilities and file managers

Security schemes:

- Webbox security scheme (on page 131) - preventing manipulation with logs directory permissions.

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FTP Server

Parallels H-Sphere FTP is based on ProFTPD server and installed on Web boxes as `hsphere-ftp-<version>-<build>` package, where `<version>` is ProFTPD version, and `<build>` is this package's build number.

ProFTPD binary is `/hsphere/shared/sbin/proftpd`.

Please refer to the original ProFTPD site for Configuration Directive List, <http://www.proftpd.org/docs/directives/linked/configuration.html>.

There are two kinds of FTP:

- **User FTP:** When a new user account is created, its user is provided with the FTP account and thus may download/upload files from/to the user's home directory (`/hsphere/local/home/<user_name>`) by FTP using its name and password.
- **Virtual (anonymous) FTP:** a service provided only for dedicated IP accounts, enables to create virtual accounts to download/upload files from/to virtual account directories that are located within the account home directory, and provides anonymous access to the public directory.

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User FTP

Log File

When a user uploads or downloads data, the corresponding record is made in the log files:

`/hsphere/local/var/proftpd/xferlog` - FTP log

`/hsphere/local/var/proftpd/tls.log` - TLS/SSL log

Configuration

`/hsphere/shared/config/ftpd` - FTP configuration directory

`/hsphere/shared/config/ftpd/proftpd.conf` - FTP configuration file

`/hsphere/shared/config/ftpd/proftpd.conf.shared` - FTP subaccounts' configuration file

`/hsphere/local/config/ftpd/lservers/web_<Shared_IP>.conf` - configuration files of logical servers' virtual hosts

`/hsphere/local/config/ftpd/sites` - users' virtual hosts

Read how to make changes into FTP config files in Appendix C. Customizing Server Configuration Files of Parallels H-Sphere Installation Guide.

Download/Upload Permissions

Users can download and upload files from his document root directory (`/hsphere/local/home/<user_name>/<domain_name>`) after they log in by FTP entering their login name (`<user_name>`) and password:

```
ftp user_name@domain_name
```

User FTP Traffic Calculation

Cron (on page 33) runs the `/hsphere/shared/scripts/cron/ftp_anlz_user.pl` script on everyday basis for collecting user FTP traffic.

`ftp_anlz_user.pl` parses the `/hsphere/local/var/proftpd/xferlog` FTP log file and writes FTP traffic statistics into the `/hsphere/local/var/statistic/dd.mm.YYYY.gst.txt` statistics files.

The TrafficLoader (on page 36) Java class utility is launched by cron to process FTP traffic statistics and load it to the system database. TrafficLoader also calls the `/hsphere/shared/scripts/xfer_cat.pl` to gzip outdated statistics files and move them into the `loaded` directory where they are stored as `dd.mm.YYYY.gst.txt.gz` archives.

Virtual FTP

Log File

For each virtual account, its own configuration file is located in the `/hsphere/local/var/proftpd/logs/` directory. File format: `<vhost_id>.ftp.log`.

For example, `wwwuser` has virtual FTP enabled for the `test.psoft` virtual host, and `vhost_id=1208` is the virtual host identifier. When the virtual FTP user `test3` connects by FTP to the virtual host (`ftp test3@test.psoft`), he would be allowed to download and upload (if permissions to write are set to that virtual host) from `/hsphere/local/home/wwwuser/1208` directory for downloads and `/hsphere/local/home/wwwuser/1208/incoming` directory for uploaded files. The log records would be added to `/hsphere/local/var/proftpd/logs/1208.ftp.log`

The same is true for anonymous FTP account. If this option is enabled for the `test.psoft` virtual host, any user may connect by FTP using anonymous login and any email as a password, and all his downloads would go to `/hsphere/local/home/wwwuser/1208` directory, uploads to the `/hsphere/local/home/wwwuser/1208/incoming` subdirectory.

Configuration

Configuration directory is `/hsphere/local/config/ftpd`.

The `sites` subdirectory contains configuration files `<vhost_id>.conf`. These files are generated by Parallels H-Sphere when the new virtual FTP server is created, by parsing the `/hsphere/local/home/cpanel/shiva/shiva-templates/common/ftp/ftp.config` template where the structure of virtual host configuration is set.

The `sites/index.conf` file contains the inclusions of the `<vhost_id>.conf` files.

The `sites/<vhost_id>.passwd` files contain information on the following accounts:

- `<web_user_name>` - name of the web user under which account this virtual host is enabled. Thus, user may log on by his name and password to connect by FTP to the virtual host FTP directory.
- `<anonymous>` - if anonymous FTP is switched on, anonymous connection may be installed by the outsider.
- the list of virtual FTP users with their base64-encoded passwords.

`/hsphere/local/config/ftpd/proftpd.conf` - configuration file. It includes the user FTP configuration file and `sites/index.conf` file.

Virtual FTP Traffic Calculation

Cron (on page 33) runs the `/hsphere/shared/scripts/cron/ftp_anlz.pl` script daily to collect virtual FTP traffic statistics.

The script parses the virtual FTP log files and writes traffic statistics into the timestamp-named `/hsphere/local/var/statistic/dd.mm.YYYY.ftp.txt` statistics files.

The TrafficLoader (on page 36) Java class utility is launched by cron to process anonymous FTP traffic statistics and load it to the system database. TrafficLoader also calls the `/hsphere/shared/scripts/xfer_cat.pl` to gzip outdated statistics files and move them into the `loaded` directory where they are stored as `dd.mm.YYYY.ftp.txt.gz` archives.

FTP Over SSL/TLS

Parallels H-Sphere 3.1 implements FTP over SSL/TLS by adding `mod_tls` module (<http://www.castaglia.org/proftpd/doc/contrib/ProFTPD-mini-HOWTO-TLS.html>). If client software supports TLS, encryption is used, if not - FTP client operates in ordinary mode.

FTP over SSL/TLS works with shared SSL certificates (on page 121) on standard FTP ports (20/21).

The `/hsphere/local/config/ftpd/scripts/ftp-sharedssl.sh` script which runs after installing the FTP software creates virtual configs from the `/hsphere/local/config/ftpd/lsvr.conf.tmpl` template for each shared IP - `/hsphere/local/config/ftpd/lservers/web_<Shared_IP>.conf` that take `proftpd` configuration from the `lservers` directory.

`ftp-sharedssl.sh` script runs also after each restarting of the FTP server, and all virtual hosts are regenerated anew.

Please refer to FTP client software which support FTP over SSL:

- <http://www.ford-hutchinson.com/~fh-1-pfh/ftps-ext.html#client>
- <http://hp.vector.co.jp/authors/VA027031/orenosv/ftps.html>
- <http://www.vicman.net/lib/ftps/client>

SSL Implementation on Unix Web Servers

This document covers SSL implementation on Parallels H-Sphere Unix Web servers.

SSL is implemented by the `mod_ssl` Apache utility and uses OpenSSL package installed on the box. Parallels H-Sphere uses native OpenSSL packages installed with operating systems.

There are two SSL modes: dedicated and shared.

Dedicated SSL

In dedicated SSL mode, a single SSL certificate is issued for a dedicated IP.

For dedicated IPs, SSL keys are located in the user home directory:

`/hsphere/local/home/<user_name>/ssl.conf/<domain_name>/`

If SSL is enabled, the following files will be placed to this directory:

- `server.crt` - SSL certificate
- `server.key` - SSL private key

Shared SSL

In shared SSL mode, one SSL certificate would be used for all IPs under the same domain zone.

Directories with SSL certificates and keys are located in the Apache config directory (`/hsphere/shared/apache/config/`).

`/hsphere/shared/apache/conf/ssl.shared` - directory for shared SSL certificates and keys.

Shared SSL directory structure:

- `ssl.shared/<domain_name>` - directory with SSL certificate and private key for a domain

With SSL enabled, the following files are placed into this directory:

- `server.crt` - SSL Certificate
- `server.key` - SSL Private Key
- `server.csr` - SSL signing request (if certificate has been generated by Parallels H-Sphere SSL generator tool)

When the user turns SSL off, the files remain on the server. When the user turns SSL back on, they are overwritten with the new files.

Third Party Log Analyzers Integrated in Parallels H-Sphere

Parallels H-Sphere integrates the following third-party log analyzers (traffic calculators):

- Webalizer
- ModLogAn
- AWStats
- Urchin

Please also refer to Web Traffic Calculation in Parallels H-Sphere (on page 133).

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Webalizer

Webalizer (<http://www.webalizer.com/>) is one of the most popular traffic log analyzers. It is included to default Parallels H-Sphere installation and available for Linux-hosted accounts. Webalizer analyzes transfer log and generates readable HTTP transfer reports for a domain.

To activate the Webalizer resource, the Transfer Log resource must be enabled.

Webalizer is installed as the `hsphere-webalizer-<version>-<build>` package, where `<version>` is Webalizer version, and `<build>` is this package's build number.

`/hsphere/shared/bin/webalizer` - Webalizer installation directory.

`/hsphere/shared/apache/conf/webalizer_user.cfg` - Webalizer config file.

In Parallels H-Sphere scripts directory, the following scripts are used for Webalizer activation and update:

- `/hsphere/shared/scripts/webalizer-init` - script for starting Webalizer
- `/hsphere/shared/scripts/webalizer-stop` - stop Webalizer
- `/hsphere/shared/scripts/webalizer-update.pl` - Perl script for Webalizer update

Webalizer directory for a domain:

`/hsphere/local/home/<user>/<domain.name>/webalizer/`.

Webalizer statistics for a domain can be viewed at **Error! Hyperlink reference not valid.**

For the location of user log files, please refer to Third-Party Traffic Calculation (on page 133).

ModLogAn

ModLogAn, <http://www.modlogan.org/>, is a third-party traffic calculation utility, similar to Webalizer.

To activate the ModLogAn resource, Transfer Log must be enabled.

ModLogAn is installed as the `hsphere-modlogan-<version>-<build>` package, where `<version>` is ModLogAn version, and `<build>` is this package's build number.

`/hsphere/shared/bin/modlogan` - ModLogAn installation directory.

`/hsphere/shared/apache/conf/modlogan_user.cfg` - ModLogAn config file.

In the Parallels H-Sphere scripts directory, the following scripts are used for ModLogAn activation and update:

- `/hsphere/shared/scripts/modlogan-init` - script for ModLogAn initialization.
- `/hsphere/shared/scripts/modlogan-stop` - stop ModLogAn
- `/hsphere/shared/scripts/modlogan-update.pl` - Perl script for ModLogAn update

ModLogAn directory for a domain:

`/hsphere/local/home/<user>/<domain.name>/modlogan/`.

ModLogAn statistics for a domain can be viewed at **Error! Hyperlink reference not valid.**

For the location of user log files, please refer to Third-Party Traffic Calculation (on page 133).

AWStats

AWStats is a free tool that generates advanced graphical web server statistics reports. AWStats is set up on each Unix/Linux and Windows web server with Parallels H-Sphere installation or upgrade. Statistics is calculated for each domain separately.

AWStats is installed as the `hsphere-awstats-<version>-<build>` package, where `<version>` is AWStats version, and `<build>` is this package's build number.

AWStats installation directory: `/hsphere/shared/awstats.`

Each domain has its own AWStats configuration file:

`/hsphere/local/home/<user>/<domain.name>/cgi-bin/awstats.<domain.name>.conf`

AWStats log directory for a domain:

`/hsphere/local/home/<user>/<domain.name>/awstats/data/`

AWStats statistics for a domain can be viewed at **Error! Hyperlink reference not valid.**

For the location of user log files, please refer to Third-Party Traffic Calculation (on page 133).

Urchin

Urchin is a third party Web analytics software integrated into Parallels H-Sphere. Urchin is installed and configured separately (on page 461).

Urchin directory: `/hsphere/local/urchin.`

Urchin collects statistics for each domain into the

`/hsphere/local/urchin/var/logs/urchin-<domain_id>.log` files. This statistics is transferred to the Urchin remote server via HTTP by means of the `print-log.pl` script located in `cgi-bin` directory of each domain directory.

Log file with Urchin history: `/hsphere/local/urchin/data/history.`

WebShell

WebShell is the Parallels H-Sphere web-based file manager that enables to browse, access, and protect remote directories without knowing the Unix file structure. It allows to copy, move, delete, and rename files and directories in the home directory on the server. Also, it can be used to upload, download, compress and decompress files as well as preview them in the browser.

WebShell is installed with Web server by means of `hsphere-webshell` package.
`/hsphere/shared/apache/htdocs/webshell4` - Webshell 4 installation directory.

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WebShell CGI Mode

Regular WebShell (SO mode) requires that certain modules (`exec`, `proc_open`, and some others) are enabled in `php.ini`. However, more restricted security schemes have these modules disabled. In this case, WebShell CGI mode is developed to work in standalone PHP environment.

WebShell CGI mode package is `hsphere-webshell-cgi`.
`/hsphere/shared/apache/htdocs/webshell5` - Webshell CGI directory.

➤ *To switch to WebShell CGI mode:*

- 1 Go to admin CP, **E.Manager** -> **Servers** -> **L.Servers** menu.
- 2 Choose WebShell5 (CGI Mode) option in **Additional Options**.

After that, WebShell in CGI mode will be available for a virtual host at: **Error! Hyperlink reference not valid.**

Specific WebShell CGI Mode features:

- User authentication procedure uses `unixserver` daemon (based on `daemontools`) with `pwgetquota` utility
- `pwgetquota` utility: returns user quota limits and login status
- standalone PHP instructions are added to the `.htaccess` file in the `webshell5` directory and to Apache's `httpd.conf`

MnoGoSearch

MnoGoSearch, <http://www.mnogosearch.org/>, is a web search engine that searches your site by keywords. It can run on both intranet and Internet pages. MnoGoSearch is installed into Parallels H-Sphere from a single package `hsphere-mnogosearch-<version>-<build>`, where `<version>` is MnoGoSearch version, and `<build>` is this package's build number.

All MnoGoSearch files are installed in `/hsphere/shared/mnogosearch`, except for `mnogosearch-init` and `mnogosearch-set` scripts, that are placed to `/hsphere/shared/scripts`.

For the proper work of MnoGoSearch, you will also need the file `~httpd/conf/mnogosearch.conf` that assigns domains but is not included in the package `hsphere-mnogosearch-x.x.x`.

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MnoGoSearch Configuration Scripts

mnogosearch-init

mnogosearch-init script is used to enable/disable MnoGoSearch.

Usage:

```
mnogosearch-init [ -f homedir ] [ -u login ] [ -g group ] [ -d domain ]
[ -l dblogin ] [ -p dbpasswd ] [ -t dbhost ] [ -n dbname ] [ -a
user_action ]
```

Where:

- **homedir** - user home directory
- **login** - user name
- **group** - the group to which the user belongs
- **domain** - domain name
- **dblogin** - MnoGoSearch database login
- **dbpasswd** - MnoGoSearch database password
- **dbhost** - MnoGoSearch database host
- **dbname** - MnoGoSearch database name

user_action - 'set' parameter adds MnoGoSearch, 'drop' removes When MnoGoSearch is being enabled, this script:

- creates for the domain folder `/user_homedir/mnogosearch/domain_name` where it places the files `indexer.conf` and `search.htm`. A user can configure these files to customize indexer and frontend.
- in the folder `/user_homedir/domain_name`, creates the folder `fe_mnogosearch` where it places PHP-frontend. Now, the MnoGoSearch can be found at **Error! Hyperlink reference not valid.**
- creates the table structures by running:

```
/hsphere/shared/mnogosearch/sbin/indexer -Ecreate
user_homedir/mnogosearch/domain_name/indexer.conf
```
- performs indexing.

When MnoGoSearch is being disabled, the **mnogosearch-init** script removes all the custom settings.

mnogosearch-set

mnogosearch-set script is used to add/remove startup links from the server.

Usage:

```
mnogosearch-set [ -a | -r ] [ -d domain ] [ -u URL ]
```

Where:

- **-a** - adds startup URL
- **-r** - removes existing entering URL
- **domain** - domain for which these changes are done
- **URL** - URL which is to be added or removed This script is executed when the startup link in the field "Add new MnoGoSearch URL" is submitted. It adds/removes the startup URLs into/from the file `user_homedir/mnogosearch/domain_name/indexer.conf`

MnoGoSearch frontend

MnoGoSearch frontend written in Perl is replaced with PHP-based frontend.

To use MnoGoSearch with PHP frontend, PHP must include `mnogosearch-php-extension`. See Parallels H-Sphere PHP (on page 386) documentation.

Parallels H-Sphere Jail

Parallels H-Sphere jail shell provides chrooted shell environment with a set of widely used utilities and file managers. It is implemented via `hsphere-jail-<version>` package.

If the corresponding resource is enabled for the account, user's SSH access is realised in the chrooted environment limited by the user home directory.

During jail execution by the SSHD daemon the formed jail skeletons are bound to the corresponding mount points in the user's home. For this purpose `jaild` daemon is used, which communicates with jail client via a UNIX socket. If none ssh connections are established by unix user, the mount points become unmounted by the related cron task during next 2 minutes.

In this section:

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Utilities

`hsphere-jail` package includes a set of the following widely used utilities: `cat`, `echo`, `ln`, `mkdir`, `ps`, `rm`, `sh`, `cp`, `date`, `kill`, `ls`, `mv`, `pwd`, `rmdir`, `sleep`, `md5/md5sum`, `ping`, `awk`, `diff`, `find`, `id`, `sed`, `tar`, `whereis`, `basename`, `dirname`, `grep`, `ldd`, `sort`, `touch`, `which`, `cut`, `du`, `head`, `more`, `tail`, `vi`, `whoami`, `clear`.

These utilities with the corresponding list of required libraries and share configuration directories/dbs are formed in the predefined location during package install and may be recreated in the case of system update via native package managers.

File Managers

The following widely used file managers are available:

- `mc` (<http://www.ibiblio.org/mc>) – GNU Midnight Commander
- `ytree` (<http://www.han.de/~werner/ytree.html>) – Ytree a UNIX Filemanager
- `vifm` (<http://vifm.sourceforge.net/>) – ViFM a UNIX Filemanager

Scripts

List of the included scripts follows:

- `/hsphere/local/config/jail/scripts/check_jail` checks whether utilities and their libraries, which are included in the jail environment, were changed (for example after system update). If so, the `/hsphere/local/config/jail/scripts/config_jail` is executed.
- `/hsphere/local/config/jail/scripts/config_jail` is used for forming jail environment and executed in the post-install package section or via the `/hsphere/local/config/jail/scripts/check_jail` script.
- `/hsphere/local/config/jail/scripts/jailmount` is a realization of `jaild` daemon which accepts connection from the jail client when establishing ssh connection. It requires `daemon` tools and `unixserver` installed on the boxes.
- `/hsphere/local/config/jail/scripts/jailumount` is a cron task responsible for unmounting unused mountpoints initiated during previous SSH connections by users with valid jail shell.

Preventing Manipulation with Logs Directory Permissions

The security scheme prevents untrusted users from manipulating logs directory and prohibits users other than `httpd` from entering user directory. The example of the permissions and groups associated with the directories in the security scheme is as follows:

```
d---rwx--t 3 root january 4096 Dec 8 20:32 january
```

where:

- `d---rwx--t` - permissions with a sticky bit that prevents users from making any changes to logs directory
- `root` - owner of the directory (should not coincide with the user name)
- `january` - directory name
- `4096` - size in bytes
- `Dec 8 20:32` - date of last modification

`january` - user home directory name Use `logslock` utility to put/remove immutable flag from the `~userhome/logs` directory:

```
logslock -h
```

Usage:

```
/hsphere/shared/bin/logslock [ -p directory ] [ -u directory ] [-s] [-a]
```

`p` : set sticky bit on home directory

`u` : unset sticky bit from home directory

`a` : unset sticky bit from home directories of Parallels H-Sphere users

`s` : set sticky bit on home directories of Parallels H-Sphere users

Note: The above mentioned permission settings for user home directory may cause user access denial via ssh if public key authentication is used. To avoid the problem, you can disable strict sshd mode by editing `sshd_config` file and restarting sshd daemon (`/etc/ssh/sshd_config` file on Linux).

Altering Virtual Host Configuration

Sometimes you might want to alter Parallels H-Sphere so it creates some additional entries in Virtual Host config files for a particular plan. You might need it to integrate java hosting, or some 3rd party CGI. For this, you would have to edit the file `common/domain/vhost.config`

`vhost.config` is the file for virtual host configuration. It has a form of a template, like any other template used in Parallels H-Sphere. You should read the guide on template customization in Parallels H-Sphere Customization Guide and create custom templates directory as well as make a copy of the file before you start modifying the file.

First of all, choose a parameter to separate one plan from another. To do that, go to **Plans->Manage**, and click **settings** next to the plan. Set variable, like `TOMCAT_SUPPORT` 1. After that, open the `vhost.config` template, and add:

```
<if account.plan.values.TOMCAT_SUPPORT == "1">
...
</if>
```

Within this IF clause, do whatever you got to do for that virtual host config. This way, only plans with that setting would have this entry.

There are 3 scripts that are used for domain, on domain creation, deletion, and when some alteration to the config is done. This is how they are called:

- On domain creation:
`apache-vhost`
`apache-saveconf`
- On domain removal:
`apache-delconf`
- On update:
`apache-saveconf`

Script	Description	Parameters
<code>/hsphere/shared/scripts/apache-saveconf</code>	creates a site configuration file	\$1 - id of the site
<code>/hsphere/shared/scripts/apache-delconf</code>	deleting vhost file	\$1 - id of site configuration removed (we don't remove files)

/hsphere/shared/scripts/apache-vhost	creating vhost directory	\$1 - directory inside user directory \$2 - username \$3 - group name \$4 - permission to the directory \$5 - domain \$6 - instant alias \$7 - cpanel login \$8 - control panel url \$9 - Parallels SiteStudio url \$10 - Parallels SiteStudio class name (you should not care about those, it is done for the first page the user will see)
--------------------------------------	--------------------------	---

Calculating Web Traffic

Important: Parallels H-Sphere 2.5 Beta 1 and up introduces a completely different approach for traffic calculation and log rotation. Now it takes into account both incoming and outgoing traffic. Therefore, after you upgrade from Parallels H-Sphere version earlier than 2.5, your clients may find their traffic relatively increased.

There are two types of traffic calculation in Parallels H-Sphere:

- *Traffic calculation by third-party log analyzers* - Parallels H-Sphere writes log files for each customer's domain into respective directories to make them available for third-party log analyzers included into default installation: Webalizer, Modlogan, and AWStats.
- *Parallels H-Sphere built-in traffic calculation* - Parallels H-Sphere provides its own mechanism of traffic calculation used in billing. Parallels H-Sphere traffic reports are available in admin CP as **Transfer Traffic Report** in the **Reports** menu.

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Using Third-Party Log Analyzers for Traffic Calculation

HTTP Logs for each domain are located in the `/hsphere/local/home/{user}/logs/<domain.name>/` directory, in the following files, provided respective resources are enabled:

- **Transfer log:** the `<domain.name>` file;
- **Agent log:** `agent_log`
- **Referrer log:** `referrer_log`
- **Error log:** `error_log`

Here, `<user>` is account name, and `<domain.name>` is user domain name.

Log Rotation

Parallels H-Sphere runs daily cron script `/hsphere/shared/scripts/cron/cron_rotate.pl`:

```
0 2 * * * nice -15 /hsphere/shared/scripts/cron/cron_rotate.pl
```

Log rotation data is taken from the `/hsphere/local/config/httpd/logrotate_confs/` directory. The files there look like:

- **Transfer log:** `<domain.name>.transferlog.conf`
- **Agent log:** `<domain.name>.agentlog.conf`
- **Referrer log:** `<domain.name>.referrerlog.conf`

Error log: `<domain.name>.errorlog.conf` The `cron_rotate.pl` script:

- 1 Rotates current log files in the `/hsphere/local/home/{user}/logs/{domain.name}/` directory into the `{domain.name}.1`, `{domain.name}.2.gz`, `{domain.name}.3.gz` etc. files (the first one NOT being gzipped). For example:

```
-rw----- 1 user29 user29 0 Jan 9 20:24 domain29.test
-rw----- 1 user29 user29 392000 Jan 9 20:24 domain29.test.1
-rw----- 1 user29 user29 1495 Jan 9 20:24 domain29.test.2.gz
-rw----- 1 user29 user29 1496 Jan 9 20:11 domain29.test.3.gz
...
```

- 1 Runs Webalizer's, Modlogan's and AWStat's command-line utilities that parse current logs and store them into respective directories for each domain in format readable for these analyzers.
- 2 Webalizer, ModLogAn and AWStats take statistics from the access log files already rotated. Currently used access log files for Webalizer/Modlogan/AWStats are specified in the respective `<LOG>.<domain.name>.txt` files:
 - Webalizer: `webalizer.<domain.name>.txt`
 - Modlogan: `modlogan.<domain.name>.txt`
 - AWStats: `awstats.<domain.name>.txt`

`cron_rotate.pl` uses the `/hsphere/shared/scripts/getlogs.pl` script to update the latest log file name specified in these files. Also, it calls Webalizer's, Modlogan's and AWStat's command-line utilities that parse current logs and store them into respective directories for each domain in format readable for these analyzers:

- Webalizer: `/hsphere/local/home/<user>/<domain.name>/webalizer/`
- Modlogan: `/hsphere/local/home/<user>/<domain.name>/modlogan/`
- AWStats: `/hsphere/local/home/<user>/<domain.name>/awstats/data/`

Calculating Parallels H-Sphere Built-In Traffic

Traffic Log

Parallels H-Sphere uses the `mod_psoft_traffic` module to write a more informative and convenient traffic log into the `/hsphere/local/var/httpd/logs/traffic_log` file. Traffic log has the following format:

```
<unix_timestamp> <domain_name> <incoming_traffic> <outgoing_traffic>
```

For example:

```
1102091887 domain.com 623 623
1102091888 domain.com 65 132
```

Analyzing Logs

Parallels H-Sphere runs daily the `/hsphere/shared/scripts/cron/analyze.pl` cron (on page 33) script:

```
0 0 * * * nice -15 /hsphere/shared/scripts/cron/analyze.pl
/hsphere/local/var/httpd/logs/traffic_log
```

The script parses `traffic_log` and writes specially formatted `dd.mm.YYYY.txt` http log files in the `/hsphere/local/var/statistic` directory (`dd.mm.YYYY` is date timestamp).

Log format:

```
|<domain.name>|incoming_traffic|outgoing_traffic|
```

TrafficLoader

TrafficLoader Parallels H-Sphere Java class is in charge of parsing server traffic. It is launched daily by cron (on page 33):

```
30 5 * * * su -l cpanel -c 'java psoft.hsphere.TrafficLoader'
```

TrafficLoader processes Web, mail, FTP and virtual FTP traffic in the formatted statistics files located in the `/hsphere/local/var/statistic` directory and inserts these lines into the `translog` table of the Parallels H-Sphere system database.

TrafficLoader also calls the `/hsphere/shared/scripts/xfer_cat.pl` script to rotate the already loaded statistics files to the `/hsphere/local/var/statistic/loaded` directory as `dd.mm.YYYY.txt.gz` archives.

Adding Directories for User Homes

In the default Parallels H-Sphere configuration, user homes are located in `/hsphere/local/home`. In some situations, you may want to add more directories for user homes, for instance:

- You need to add a new hard drive. In this case you must mount the new HDD partition next to the existing home directory:
`/hsphere/local/home2/`
- You have web and Unix RealServer running on the same box, but would like to keep their user homes in different directories. In this case you must create a directory for RealServer user homes:
`/hsphere/local/realhome/`

You can't add directories for user homes outside `/hsphere/local/` subtree, because this is where apache suexec is configured to run users' cgi scripts.

➤ **To add a directory for user homes:**

- 1 In your admin cp, select **L.Servers** in the **E.MANAGER** -> **Servers** menu.
- 2 Select the server you've added the directory for, and at the bottom of the page that appears enter the name of the new directory.

As a result of this procedure, old user homes will remain functional in their old location, and new user homes will be created in the new directory regardless of the plan.

Installing Ruby on Rails

Parallels H-Sphere includes support for Ruby on Rails (<http://www.rubyonrails.org/download>) via FastCGI. However, before enabling it in hosting plans, administrators need to manually install Ruby on Rails on their Unix Web servers.

➤ **To install Ruby on Rails:**

- 1 Log into CP server as `cpanel`.
- 2 ssh to a Web server where you will install Ruby on Rails.
- 3 Install the Ruby package from its home page:
 1. Download the latest ruby package with `wget` for Linux or `fetch` for FreeBSD (in this document we use version 1.8-5p2 as an example, but the version could be updated):

```
wget http://ftp.ruby-lang.org/pub/ruby/1.8/ruby-1.8.5-p2.tar.gz
```


2. Untar the package:

```
tar zxvf ruby-1.8.5-p2.tar.gz
cd ruby-1.8.5-p2
```

3. Compile and install the package:

```
./configure
make
make install
```

4 Install Ruby Gems:

1. Download the latest Ruby Gems version with wget for Linux or fetch for FreeBSD (in this document we use version 0.9.4 as an example, but this version could be updated):

```
wget http://rubyforge.org/frs/download.php/17190/rubygems-0.9.4.tgz
```

2. Untar the package:

```
tar xzvf rubygems-0.9.4.tgz
cd rubygems-0.9.4
ruby setup.rb
```

5 Complete Ruby on Rails installation:

```
gem install rails --include-dependencies
gem install -y fcgi -- --build-flags --with-fcgi-dir=/hsphere/shared/
```

After that, switch the Ruby on Rails resource on under Web Services in a Unix hosting plan to enable RoR for users.

Installing Chili!Soft ASP

This guide describes the installation of Chili!Soft ASP to Parallels H-Sphere web box.

It is advisable to read the README file that contains Chili!ASP bundle to get familiar with Chili!ASP general issues and features.

WORKFLOW

1 Download Chili!Soft ASP tarball.

2 Run the command

```
# mkdir casp
```

3 Run the command

```
# tar xf chiliasp-3.6.2L.1047a.tar -C casp
```

4 Run the command

```
# cd casp && ./install
```

- 5 You will see dialogue windows in the order set below. We shall lead you through the procedure and give you the responses required for the correct Sun Chili!Soft ASP installation.
- On each step, you will have to choose one of the options suggested. The default choice is shown in square brackets e.g. [1], the option that you need to choose is shown in bold in the description below next to the default one, e.g. [1] **2** -- the correct choice is option 2.

Step I.

Sun Chili!Soft ASP - Installation

Setup will now install the files needed to run and configure Sun Chili!Soft ASP to a directory that you specify. To accept the default (shown in brackets below), press Enter. To specify a different directory, enter the pathname and then press Enter. Note: Configuration options specific to this installation are contained in the directory that you specify. Make a note of this location, so you can easily find Sun Chili!Soft ASP files at a later time.

Enter the directory in which to install Sun Chili!Soft ASP [/opt/casp]
/hsphere/shared/casp

Extracting files to /hsphere/shared/casp ...
+ bean-classes package . done.
+ bean-jre package done.
+ bean package . done.
+ caspdac package done.
+ caspsamp package ... done.
+ casp package . done.
+ chilicom package ... done.
+ components package . done.
+ installer package . done.
+ license package . done.
+ module package . done.
+ odbc-direct-40 package done.
+ odbc-opensource package . done.
+ server package .. done.
+ sqlnk-4_51 package . done.
+ chili-tools-linux2 package .. done.
+ supporting binary / library packages . done.

Step II.

Sun Chili!Soft ASP - Product Serial Number

Sun Chili!Soft ASP requires a valid serial number to run. If you downloaded this product from the Web, you should have received an e-mail message that included your serial number. If you are installing this product from a CD-ROM, the serial number is printed on the CD-ROM case. If you do not have a serial number, enter 'n' below to receive a 30-day trial license.

Note: iPlanet 6.0 users are already licensed to use this product and do not need to enter a serial number. If you are using iPlanet 6.0, enter 'n' below to receive a full, unlimited license.

Do you have a Sun Chili!Soft ASP Product Serial Number (y/n)? [y] **y**

Note: If you wish to exit out of the license key installer, type none.

Enter your Sun Chili!Soft ASP Product Serial Number
[none] **Y_O_U_R_S_E_R_I_A_L**

Step III.

Sun Chili!Soft ASP - Bundled Apache 1.3.19 Configuration

Sun Chili!Soft ASP includes a ready-to-run Apache 1.3.19 Web server that is configured with Microsoft (TM) FrontPage 2002 Server Extensions support and EAPI (Extended API). If you have not yet configured a Web server, you now have the option to install this preconfigured Apache Web server.

Note: Sun ChiliSoft ASP supports but does not install FrontPage 2002 Server Extensions; those must be obtained from Microsoft. For more information about Sun Chili!Soft ASP support for FrontPage 2002 Server Extensions, see 'Chapter 3' in our production documentation. For more information about EAPI, including the mod_ssl / OpenSSL module, visit www.modssl.org

Would you like to install the bundled Apache 1.3.19 Web server (y/n)? [n] **n**

Step IV.

Sun Chili!Soft ASP - Language Selection

Sun Chili!Soft ASP supports various languages. Select the language you want to use from the list below.

1. English - US
2. English - British
3. Japanese Shift-JIS
4. German
5. Dutch
6. Spanish
7. French

Which language would you like to use? [1] **1**

Step V.**Sun Chili!Soft ASP - Configuring Java Support**

The Sun Chili!Beans component allows you to directly access Java objects and classes from inside your ASP scripts. For this functionality to be provided, a Java runtime environment (JRE) must be installed. Sun Chili!Soft ASP includes JRE 1.3.1. While other JREs are supported, the use of JRE 1.3.1 is strongly recommended. Choose option 1 to use the bundled JRE.

1. Use the bundled JRE 1.3.1.
2. Specify the path to an existing JRE.
3. Disable Java support.

Which JRE would you like to use? [1] **3**

Are you sure you want to disable Java support (y/n)? [n] **y**

Step VI.**Sun Chili!Soft ASP - Web Server Auto-Detection**

Setup will now conduct a search of your system to generate a list of installed Web servers. On the next screen, you have the option to enable ASP support for one of these detected Web servers. If you want to skip this step, you can specify the pathname to a specific Web server by choosing option 4 below.

1. Exhaustive search (slow)
2. Search in: /usr, /opt, /etc, /var (moderate)
3. Search the common Web server locations (fast)
4. Don't search (specify Web server on next screen)

Which type of search would you like to perform? [2] **4**

Step VII.**Sun Chili!Soft ASP - Web Server Configuration**

No Web servers have been detected. As options, you can manually specify Web server information to aid in detection, direct Setup to try to detect more Web servers, or delay Web server configuration until another time.

1. Specify the Web server.
2. Attempt to auto-detect more Web servers.
3. Do not configure a Web server.

Which configuration option would you like to perform? [1] **1**

Step VIII.

Sun Chili!Soft ASP - User-specified Web Server Configuration

Listed below are the types of Web servers to which this version of Sun Chili!Soft ASP will install:

1. Apache
2. Netscape / iPlanet
3. Zeus
4. Cancel user-specified Web server configuration.

Which Web server type do you want to configure? [1] 1

BEFORE REPLYING TO THE NEXT QUESTION, DO THE FOLLOWING STEPS FROM ANOTHER SERVER CONSOLE:

- a) check if your version of Parallels H-Sphere Apache server is different from the supported bundle version

```
# /hsphere/shared/apache/bin/httpd -v
```

- b) if it is, do two additional steps:

```
#mkdir -p
```

```
/hsphere/shared/casp/module/linux2_optimized/apache_1.3.{corresponding_number}/eapi
```

```
#cp
```

```
/hsphere/shared/casp/module/linux2_optimized/apache_{number_of_bundle_version}/mod_casp2.so \
```

```
/hsphere/shared/casp/module/linux2_optimized/apache_1.3.{corresponding_number}/eapi
```

- c) return to the installation console.

NOTE: Regardless of this fact, you may be able to build your own module that supports this version of Apache. Refer to Sun Chili!Soft ASP documentation for information on building your own module. After the module has been built, proceed to the following steps:

(1) # mkdir -p

```
/hsphere/shared/casp/module/linux2_optimized/apache_1.3.23/eapi
```

(2) # cp <generated build dir>/mod_casp2.so

```
/hsphere/shared/casp/module/linux2_optimized/apache_1.3.23/eapi
```

(3) Re-run the the installer by executing the following script:

```
HASH(0x81b9b84) - {asphome} /INSTALL/install
```

After placing the file into the created module directory, the installer will recognize it as a supported Web server and act accordingly.

Step IX.

Sun Chili!Soft ASP - Apache Configuration

Because of the way the Apache Web server works, few of the configuration questions listed below can be answered outright. However, wherever possible, default values have been provided for some of the questions.

Note: To exit Web server configuration, type 'none' for the listed option.

Enter the path and file name of the Apache Web server configuration file:
[none] **/hsphere/shared/apache/conf/httpd.conf**

Enter the path and file name of the Apache binary:
/hsphere/shared/apache/bin/httpd

Step X.

Sun Chili!Soft ASP - Web Server Configuration

The following list contains all currently detected Web servers. If the Web server for which you want to enable ASP support appears below, enter the number that corresponds to the Web server. If the Web server is not listed, you can manually specify Web server information to aid in detection, direct Setup to try to detect more Web servers, or delay Web server configuration until another time.

1. Apache Secure Server

Settings file: `/hsphere/shared/apache/conf/httpd.conf`

Port: 80

2. Specify the Web server.

3. Attempt to auto-detect more Web servers.

4. Do not configure a Web server.

Which configuration option would you like to perform? [1] **1**

Step XI.

Sun Chili!Soft ASP - Web Server Verification

Setup has automatically detected the following information about the Web server you selected on the previous screen. If the information is correct, type 'y' and press Enter. If the information is incorrect type 'n', press Enter, and then select 'Specify the Web server' from the menu.

Web server information:

Main configuration file: `/hsphere/shared/apache/conf/httpd.conf`

Binary: `/hsphere/shared/apache/bin/httpd`

Version: 1.3.19

Type: Apache

Port: 80

Root: `/hsphere/shared/apache`

The Web server information is correct (y/n). [n] **y**

Step XII.

Sun Chili!Soft ASP - Server Configuration

Setup will now configure the Sun Chili!Soft ASP Server. Unless you are an experienced Sun Chili!Soft ASP user, it is strongly recommended that you use the default configuration settings (option 1, below). If you choose the custom configuration option, you will be asked to specify a number of settings. For detailed information about configuring Sun Chili!Soft ASP, see 'Chapter 3' in the product documentation.

1. Default configuration.
2. Customize configuration.
3. Choose another Web server to install to.

Select a configuration option. [1] **1**

Step XIII.

Chili!Soft ASP - Administration Console Installation

Setup will now install the Sun Chili!Soft ASP Administration Console. Unless you are an experienced Sun Chili!Soft ASP user, it is strongly recommended that you choose the default configuration (option 1, below). If you choose the custom configuration option, you will be asked to specify a number of settings. For detailed information about configuring the Sun Chili!Soft ASP Administration Console, see 'Chapter 3' in the product documentation.

Note: If you choose the 'Default configuration' option, the username and password will be set to default values. To protect the security of your server, you should change these settings immediately after installation. For more information, see the product documentation.

1. Default configuration
2. Custom configuration

Select a configuration option for the Administration Console. [1] **1**

Step XIV.**Sun Chili!Soft ASP - Administration Console Information**

Setup has finished installing the Administration Console. To configure Sun Chili!Soft ASP, you can connect to the Administration Console from a URL or from the command line, as shown below. For more information about configuring Sun Chili!Soft ASP, see 'Chapter 3' in the product documentation. It is a good idea to print this page for future reference.

To connect from a browser, use this URL: <http://gargona.psoft:5100>

To start, stop and add users, use this script: `/var/casp/admtool`

The console's username is: `admin`

The console's password is: `root`

To continue, press `Enter`.

Step XV.**Sun Chili!Soft ASP - Setup Complete**

Sun Chili!Soft ASP has been successfully installed! Important next steps:

- Read the README file that came with Sun Chili!Soft ASP. This file contains the latest installation and application notes.
- Read the 'Getting Started' section in the 'Sun Chili!Soft ASP Quick Start Guide.' This guide provides basic information about getting started with Sun Chili!Soft ASP, and points you to additional resources.
- Take a moment to register this product. By registering you will be eligible for 30 days of free introductory support. Register at: <http://www.chilisoft.com/register>

Summary file: `/var/casp/logs/install_summary`

- 6** If the installation was performed correctly, corresponding Chili!ASP services should be activated. Use

```
# ps -ax | grep casp
```

Also, check the `httpd.conf` file for the presence of additional directives. Use

```
# grep casp /hsphere/shared/apache/conf/httpd.conf
```

- 7** If all is OK, copy the web content of ASP test scripts into corresponding default "DocumentRoot" directory

```
# cp -Rp /hsphere/shared/casp/caspsamp
/hsphere/shared/apache/htdocs/
```

- 8** Check the operation of ASP test scripts via the URL
http://your_webserver_name/caspsamp

- 9** You may reinstall Chili!ASP. In this case, you need to execute the `/hsphere/shared/casp/uninstall` script prior to the re-installation.

NOTE: It is advisable to avoid restarting Apache when installing Chili!Soft ASP even if suggested so by the installation script.

Installing mod_perl

This guide describes the installation of mod_perl to Parallels H-Sphere box.

As Apache server is installed without mod_perl support during Parallels H-Sphere installation, the simplest way to include this extension is through building mod_perl as a DSO outside the Apache source tree via the new Apache 1.3 support tool apxs (APache eXtension).

To install mod_perl:

- 1 Download the latest mod_perl source and documentation from <http://perl.apache.org>. Complete documentation may be found at <http://www.cpan.org/modules/by-module/DB/File>. The Apache-mod_perl_guide installer is located at the same address.
- 2 Fulfill the following build steps:

```
% tar xzvf mod_perl-x.xx.tar.gz
% cd mod_perl-x.xx
% perl Makefile.PL \
USE_APXS=1 \
WITH_APXS=/hsphere/shared/apache/bin/apxs \
EVERYTHING=1 \
[...]
% make && make install
```

This will build the DSO libperl.so outside the Apache source tree with the new Apache 1.3.x support tool apxs and install it into the existing Apache hierarchy. For example, if you want to use mod_perl for Web server, you need to set WITH_APXS=/hsphere/shared/apache/bin/apxs. Following the successful installation the following should appear:

- a /hsphere/shared/apache/libexec/libperl.so file
- b two additional directives in the /hsphere/local/config/httpd/httpd.conf file (see config file customization from Appendix C of Parallels H-Sphere Installation Guide for making changes into httpd.conf):

```
LoadModule perl_module libexec/libperl.so
AddModule mod_perl.c
```

- 3 To make sure that mod_perl works correctly, you may test it by entering in the httpd.conf file a test line similar to the one below:

```
Alias /perl/ /path_to_directory/  
PerlModule Apache::Registry  
<Location /perl>  
SetHandler perl-script  
PerlHandler Apache::Registry  
Options ExecCGI  
allow from all  
PerlSendHeader On  
</Location>
```

and create the specified above perl script without mentioning the perl interpreter:

```
/hsphere/shared/SiteStudio/public_html/perl/test.pl
```

Next, check if it works correctly by trying out the link:

http://some_url/perl/test.pl

NOTE: If you plan on intensely using the mod_perl feature, it should be properly documented. Download and install the documentation at http://www.cpan.org/modules/by-module/DB_File.

Installing Zend Optimizer

Zend Optimizer is a free application that runs files encoded by Zend Encoder, enhancing the running speed of PHP applications. This free application uses multi-pass code optimizations to speed up PHP applications. The increase in speed reduces CPU load for the server typically cutting latency time in by 20-50%.

- 1 To start the installation, you have to download Zend Optimizer. You can do that from the site www.zend.com/store/free_download.php?pid=13. You should have PHP version 4.1.0 or higher.
- 2 Login to your web box where Zend Optimizer has to be installed.
- 3 For Zend installation, you must have the file php.ini in the directory: ~httpd/conf/php4/php.ini or ~httpd/conf/php5/php.ini. ~httpd/conf/php.ini links to the file corresponding to php version being active.

Since the distribution doesn't include this file, you have to copy php.ini to the directory specified above, or, place there a symlink to the php.ini in your PHP installation directory.

- 4 Go to the directory where your Zend distribution is downloaded and extract it using the following command:

```
tar xzf Zend*****.tar.gz - the asterisks stand for any characters
```

After executing this command, Zend Optimizer directory will be created. The exact name of this directory depends on the Zend version and system characters.

- 5 To proceed with the installation, enter the following commands:

```
cd Zendoptimizer*** (the asterisks stand for any characters) - move to the  
directory where your Zend lies
```

`./install.sh` - start Zend installation

- 6 Read the license carefully. If you agree, enter Yes, otherwise enter No. You will be asked to choose the directory where you want to install Zend (`/usr/lib/Zend` by default). The installer will also ask you of the Apache bin directory (it is by default `/hsphere/shared/apache/bin`) and of the location of `php.ini` (`~httpd/conf/php4/php.ini` or `~httpd/conf/php5/php.ini`) Follow the further instructions.
- 7 Finally, the installer would suggest to restart Apache. You must do it either directly from the installer or manually (on page 55) after the installation.
- 8 If apache crashes with a segmentation fault error, the most probable reason is that the file `usr/local/lib/php.ini` was created incorrectly. Open it with a text editor and remove all lines except the first five so `php.ini` file looks as follows:

```
zend_gui_password=your_encoded_zend_gui_password
[PHP]
zend_extension=/usr/local/Zend/lib/ZendOptimizer.so
zend_optimizer.optimization_level=15
```

- 9 Check if Zend was successfully installed by putting a php file with the following content to any directory of your site:

```
<? phpinfo(); ?>
```

Then open this file in a browser. Zend Optimizer sections must appear. If your Zend Optimizer was installed successfully, the following items will be enabled:

Optimization Pass 1	Enabled
Optimization Pass 2	Enabled
Optimization Pass 3	Enabled
Zend Loader	Enabled

- 10 If one of the given items was not enabled, contact Zend Optimizer support.

Mail System

This chapter describes tasks you may need to do on your Parallels H-Sphere mail server(s).

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Understanding Parallels H-Sphere Mail

Parallels H-Sphere mail system consists of the following blocks:

- 1 Parallels H-Sphere Mail Package (on page 149): includes Qmail SMTP server with a number of antispam/antivirus and other extensions, vpopmail POP3 server, and a number of other applications.
- 2 Parallels H-Sphere Webmails (on page 150): two analogous webmail applications, SqWebMail and IMP to manage mail through web interface. System administrators can choose which of them will be offered to hosting customers. Apache used by these packages is the same as on the Parallels H-Sphere web servers.
- 3 Parallels H-Sphere IMAP Server (on page 153): Courier-IMAP server package. It is included into Parallels H-Sphere mail system by default.
- 4 Daemontools (<http://cr.yp.to/daemontools.html>): a collection of tools for managing UNIX services (such as ClamAV) adapted for Parallels H-Sphere.

All mail system components are installed with Parallels H-Sphere by default.

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Mail Package

Parallels H-Sphere mail service is represented by mail package called `hsphere-mail-service-4-<version>`.

Included Software

Parallels H-Sphere mail service includes popular mail applications:

- `hsphere-qmail` (<http://www.qmail.org/top.html>) - message transfer utility on the modified sendmail protocol. (See Qmail configuration (on page 160) manual)
- `hsphere-vpopmail` (<http://www.inter7.com/vpopmail.html>) - virtual mail utility on the POP protocol.
- `hsphere-ucspi` (<http://cr.yp.to/ucspi-tcp.html>) - tcp server and related utilities.
- `hsphere-autorespond` - autoresponder.
- `hsphere-ezmlm` (<http://www.ezmlm.org/>) - mailing list manager.
- `clamav` (<http://clamdmail.sourceforge.net/>) - qmail antivirus module.

- spamassassin (<http://www.spamassassin.org/index.html>) with additional perl modules - qmail antispam module.

Also, ClamAV and SpamAssassin require MySQL to store antivirus/antispam data, and they run under the `supervise` utility of DJB daemontools.

Webmails

Parallels H-Sphere comes with such webmail clients as:

- IMP that includes horde (<http://www.horde.org/>) and its plugins:
- imp (<http://www.horde.org/imp/>)
- kronolith (<http://www.horde.org/kronolith/>)
- mnemo (<http://www.horde.org/mnemo/>)
- nag (<http://www.horde.org/nag/>)
- turba (<http://www.horde.org/turba/>)
- SqWebMail (<http://www.inter7.com/sqwebmail/sqwebmail.html>)
- ImapProxy (on page 153)

The default client is IMP, and you don't need to do anything to use it. To enable SqWebMail over IMP, see Enabling SqWebMail below.

Horde IMP webmail client is installed on each mail server. In earlier versions, it was installed on one of the Parallels H-Sphere web servers.

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Enabling SqWebMail

➤ To set SqWebmail instead of IMP:

- 1 Log into the CP server as the cpanel user (on page 65).
- 2 Open the `hsphere.properties` file:

```
vi ~cpanel/shiva/psoft_config/hsphere.properties
```
- 3 Comment out the following line:

```
WEB_MAIL = IMP
```
- 4 Restart Parallels H-Sphere (on page 54).

Setting SMTP Server for IMP

IMP configuration is written in the `~httpd/htdocs/horde/config/conf.php` file.

IMP is configured in such a way that it uses local sendmail as SMTP server by default.

IMP is automatically switched to use external SMTP server when *smdcheck* qmail parameter (on page 160) is enabled. When you make an update to a version, reenale the parameter. If you want to make an update with disabled *smdcheck* parameter, execute the following script:

```
/hsphere/shared/scripts/mailsend_type.sh smtp
```

Usage:

```
mailsend_type.sh [ smtp | sendmail ]
```

➤ *To configure IMP to use external SMTP server, modify `conf.php` in the following way:*

1 Change the mailer type to smtp. For this, change the line:

```
$conf['mailer']['type'] = 'sendmail';
```

to:

```
$conf['mailer']['type'] = 'smtp';
```

2 Uncomment the following line and specify the smtp server:

```
$conf['mailer']['params'] = array('host' =>
'smtp.example.com');
```

where `smtp.example.com` should be a valid smtp server name.

Enabling/Disabling ImapProxy

ImapProxy 1.2.4, which is included in Webmail package, is disabled by default.

To enable it, run the script:

```
/hsphere/shared/scripts/imapproxy-init set
```

To disable ImapProxy 1.2.4, run:

```
/hsphere/shared/scripts/imapproxy-init drop
```

Localizing Webmails

The `/hsphere/local/config/mail/scripts/add_locales` script that fixes the Horde localization problem on TRUSTIX OSs is included into the package.

Usage:

```
add_locales [ locale1 locale2 ... localeN ] [ usage ] [ list ]
```

Where:

no options - adds all supported by HORDE locales

locale1 ... localeN - adds listed locales

list - lists all supported by Horde locales

usage - prints this message

This script is called out from the post-install script and during the `hsphere-webmails` installation adds utf8 locales only for *Russian, Italian, French, German, Dutch, Spanish, Portugese*.

To add the languages supported by Horde but not installed with package by default, run the script with necessary language codes (*the codes should be delimited by a space*). For instance, to add Hungarian and Chinese, run:

```
/hsphere/local/config/mail/scripts/add_locales hu_HU zh_CN
```

You can view all possible language codes by running:

```
/hsphere/local/config/mail/scripts/add_locales list
```

Note: you need to have the package `glibc-locales` installed on the server for the proper work of the script!

ImapProxy

ImapProxy component is by default included into Parallels H-Sphere Webmail package.

ImapProxy is a daemon that proxies IMAP transactions between an IMAP client and an IMAP server. The general idea is that the client should never know that it's not talking to the real IMAP server. The only thing that makes this a slightly unique Imap Proxy server is that it caches server connections.

The ImapProxy daemon is `/hsphere/shared/bin/in.imaproxyd`.

The startup script for ImapProxy daemon is `/etc/init.d/imaproxy` for Linux and `/usr/local/etc/rc.d/imaproxy.sh` for FreeBSD.

Usage of ImapProxy daemon:

Linux:

```
/etc/init.d/imaproxy [ start | stop | restart | stat | help ]
```

FreeBSD:

```
/usr/local/etc/rc.d/imaproxy.sh [ start | stop | restart | stat | help ]
```

where:

- **start** starts in.imaproxyd service
- **stop** stops in.imaproxyd service
- **restart** stops and restarts the in.imaproxyd service
- **stat** displays status of in.imaproxyd service
- **help** displays help message

This startup script uses daemontools (<http://cr.yo.to/daemontools.html>).

ImapProxy daemon listens to 144 port, and turns to 143, which is a default courier-imap port. Imp is configured to turn to 144 port, so imp connects to courier-imap through 144 port (through ImapProxy daemon).

Package includes statistic tool for ImapProxy: `/hsphere/shared/bin/pimpstat`.

Usage of `/hsphere/shared/bin/pimpstat`:

```
/hsphere/shared/bin/pimpstat -f imaproxy.conf
```

where **imaproxy.conf** is the configuration file for ImapProxy located at `/hsphere/local/config/mail/imaproxy` directory.

IMAP Server

Parallels H-Sphere IMAP Server is represented with two components:

- courier-imap (<http://www.courier-mta.org/imap/>)
- courier-authlib (<http://www.courier-mta.org/authlib/>)

Courier-IMAP is a standalone IMAP server that can be used with Parallels H-Sphere Qmail server to provide IMAP access to Maildirs.

Courier-IMAP is included into Parallels H-Sphere mail system by default.

IMAP server comes with IMAP Before SMTP Authentication support.

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Starting IMAP Server

Courier-IMAP server is started automatically with Parallels H-Sphere by running the following commands:

Linux:

```
/sbin/chkconfig --level 2345 courier-imapd on
/etc/rc.d/init.d/courier-imapd start
/etc/rc.d/init.d/courier-imapd-ssl start
```

FreeBSD:

```
/usr/local/etc/rc.d/courier-imapd.sh start
/usr/local/etc/rc.d/courier-imapd-ssl.sh start
```

Note: In order for IMAP SSL to start, SSL certificate must be uploaded through the Control Panel.

Configuring IMP with IMAP

➤ *To configure IMP to work with IMAP:*

- 1 Log into the CP server as the cpanel user (on page 65).
- 2 Open the `hsphere.properties` file:

```
vi ~cpanel/shiva/psoft_config/hsphere.properties
```
- 3 Add the following line:

```
MAIL_PROTOCOL=imap
```
- 4 Restart Parallels H-Sphere (on page 54).

Choosing Remote Web and MySQL Logical Servers for Horde Webmail Frontend

Parallels H-Sphere mail logical server is by default installed on a physical box together with Web and MySQL servers on the same box, thus Webmail frontend uses Apache and MySQL on the same server.

It is made possible to choose an alternative remote Web and MySQL servers for Horde Webmail frontend. This is in particular important for the implementation of load balanced mail cluster (on page 406) where it is required that Webmail is configured to use remote Web and MySQL servers. Also, now you can configure one Horde Webmail frontend to manage multiple mail servers.

➤ **To choose remote Web and MySQL servers for Webmail:**

- 1 Login as cpanel user (on page 65) and set the following property in `~cpanel/shiva/psoft_config/hsphere.properties`:

```
EXTERNAL_SERVICE_USAGE = TRUE
```

Then, restart Parallels H-Sphere (on page 54) to apply changes.

Important: If `EXTERNAL_SERVICE_USAGE` is not set or is not `TRUE`, you won't be able to choose external Web and MySQL servers for Webmail!

- 2 In admin CP, go to **E.Manager -> Servers -> L.Servers**, proceed to settings for this mail logical server, and Choose Unix Hosting server for Horde under Mail Server Additional Options.
- 3 Proceed to the selected Web (Unix Hosting) logical server settings in the **E.Manager -> Servers -> L.Servers** list and select a remote MySQL server for Horde database from the **Choose External Horde DB Server** dropdown menu.
- 4 Login to CP server as root, download and run the Parallels H-Sphere updater with the `hspackages reconfig` option:

```
hspackages reconfig=frontend
```

Note: Regular Parallels H-Sphere update automatically includes the `reconfig` option. However, for best performance we recommend running Parallels H-Sphere updater with this option separately.

More about Parallels H-Sphere updater read in the Update Guide.

- 5 To move Horde's Web and DB content to respective remote Web and MySQL logical server locations, run the following script on the source box:

```
/hsphere/pkg/scripts/uprocedures/dbs_content -h
```

Usage:

```
db_content [ -h ] -d dbtype [ -i ip ] [ -p password ]
```

dbtype: horde or spamassassin or phpmyadmin

ip: this option is required only in the case, if redefinition took place from current external MySQL server to another one or MySQL service, located on the corresponding mail logical server

password: this option is required only in the case if redefinition took place from current external MySQL server to MySQL service, located on the corresponding mail logical server

Changing Mail Server Roles

This document explains how to have incoming mail queued on a relay mail server while the master mail server is down or otherwise unable to receive mail.

For this, you need to do two things:

- 1 Mark the backup mail server as relay.
- 2 Allow relaying in the plan so that users can use the relay server.

Every active mail server can be either relay or master+relay.

- **master+relay** means that (1) new mail domains will be created on this server and (2) the server will receive mail for domains on other mail servers.
- **relay** (secondary queue server) means that new domains won't be created on this server, but the server will relay mail for domains on other servers.

By default, all mail servers are set as master and relay, which is the recommended configuration.

Note: If you do not want to use a server with new domains (neither host new domains nor relay mail for them), make it unavailable for signup.

Important: It is highly recommended to move static mail relays from a Web server to a dedicated mail relay server, as Web content on the same server with mail relay may become a target for spambot attacks!

➤ *To change the role of a mail server at the system level:*

- 1 Log into the control panel as admin.
- 2 Go to **E.Manager-> Servers -> L.Servers** and select the mail server.

At the bottom of the form that appears, choose server role from the drop-down box.

The screenshot shows a web form with the title "Additional options". Below the title is a label "Mail role (master+relay, relay)" followed by a dropdown menu. The dropdown menu is open, showing two options: "master+relay" and "relay". To the right of the dropdown menu is a "Submit" button.

You can allow or disallow relaying mail for a specific plan. With relaying allowed, mail to accounts under this plan will be queued on other servers when their mail server is down.

- 1 Log into the control panel as admin.
- 2 Select **Plans->Manage**.
- 3 Choose the plan.
- 4 On the first step of the wizard, check **Include** for **Mail Relay**.

Mail Services	
Email Auto Responder ?	<input type="checkbox"/> Include
Mail Box Alias ?	<input type="checkbox"/> Include
Mail Forward ?	<input type="checkbox"/> Include
Mailing List ?	<input type="checkbox"/> Include
Mail Relay ?	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Activated

If mail relays are allowed in the plan, users can choose a relay server for a specific account in their User control panel. If the server is down, mail for this account will be queued on this relay server.

- 1 Log into this account.
- 2 Go to **Mail Info** menu.
- 3 Turn **Mail Relay** on.

This will add an MX record for the server that was set as relay.

Blocking IPs on Mail Servers

To fight spam or block unwanted emails, you can block specific IPs from sending you mail. The incoming messages from this IP will bounce back to the sender.

➤ *To deny relay to specific IP:*

- 1 Go to **E.Manager -> Servers - > Mail Servers**:
- 2 At the bottom of the page choose mail server from the drop-down box.
- 3 Enter necessary IP/subnet.
- 4 Enter note, if necessary, and click the **Add** button.

The blocked IP will appear in the **Mail Server Relays** section

You can remove the blocked IP from the list at any moment by clicking the **Trash** icon on the right.

Adding Qmail Settings to IP/Subnet

➤ *To add mail relay and other Qmail settings to a chosen IP/subnet.*

- 1 Go to **E.Manager** -> **Servers** - > **Mail Servers**:
- 2 Click the **Add** button and fill in the form:
 - Choose mail server from the drop-down box
 - Enter necessary IP/subnet and a comment, if necessary,
 - Set Qmail parameters. Some of them are checked to use default value. To enter custom value, uncheck it.

Note: To deny mail relay, go to Blocking IP (on page 157).

- 3 Click **Submit**. The record will appear in the Mail Relays section

You can remove the record from the list at any moment by clicking the **Trash** icon on the right.

Bouncing Mail

When a mail server accepts a message and later decides that it can't deliver the message, it is required to send back a bounce email to the sender of the original message. These bounce emails are often misdirected.

This document outlines the correct configuration of mail server where mail bouncing should always work. Mail servers are by default configured in accordance with this scheme.

Mail bouncing policy implies the following three independent strategies:

- 1 Separate bounce IP
- 2 Processing error responses
- 3 Bounced mail delivery

See Qmail bounce parameters (on page 160) for details.

In this section:

- | | |
|---|-----|
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| 3. Bounced Message Delivery | 160 |

1. Separate IP for Sending Bounced Mail

Separate IP for sending bounced mail allows sending bounces, but isolates them to a different IP address (so that spamcop can block them without blocking other mail).

How to configure:

The respective bounce IP network alias must be up. Then, specify the bounce IP in the `/var/qmail/control/bouncingip` file and restart qmail or set the `bouncingip` parameter in the **Qmail Settings** form in the administrator CP.

After that, restart qmail.

2. Processing Error Responses

There are 2 main error status groups:

- **temporary errors:** delivery of such messages is done during queue lifetime period
- **permanent errors:** after the first delivery attempt the message is queued as a bounce message

In many cases temporary error status is inadequate. For example, the absence of mailbox or quota overlimit is sometimes considered by a remote box as a temporary error - as a result, the message may remain in the queue during lifetime period.

`hsphere-mail-service` packages adds a possibility to configure 3 additional states:

- 1 Consider temporary errors as permanent errors for local mail delivery
- 2 Consider temporary errors as permanent errors for remote mail delivery
- 3 Consider temporary errors as permanent errors for local and remote mail delivery

How to configure:

Set the `temperror` parameter in `/var/qmail/control/options`:

- **temperror=0 or absent** (default) - common behavior;
- **temperror=1** - consider temporary errors as permanent errors for local mail delivery;
- **temperror=2** - consider temporary errors as permanent errors for remote mail delivery;
- **temperror=3** - consider temporary errors as permanent errors for local and remote mail delivery.

3. Bounced Message Delivery

Bounced message delivery is performed in 3 ways:

- 1 **Simple bouncing:** message is bounced.
- 2 **Double bouncing:** message is sent to a predefined location.
- 3 **Triple bouncing:** - message is discarded.

Current mail configuration allows regarding double bounce as triple bounce. We have added a possibility to configure common bounce delivery as double bouncing or even triple bouncing. This may be useful when queue grows big and common message delivery suffers. However, in many cases this configuration is not recommended and should be applied only in critical situations.

How to configure:

Set the `strictbounce` parameter in `/var/qmail/control/options` if necessary:

- **strictbounce=1** - consider simple bounce as double bounce
- **strictbounce=2** - consider simple bounce and double bounce as triple bounce

Configuring Qmail

Parallels H-Sphere offers enhanced Qmail SMTP server configuration. Most enhancements have been added to fight spam at the server level.

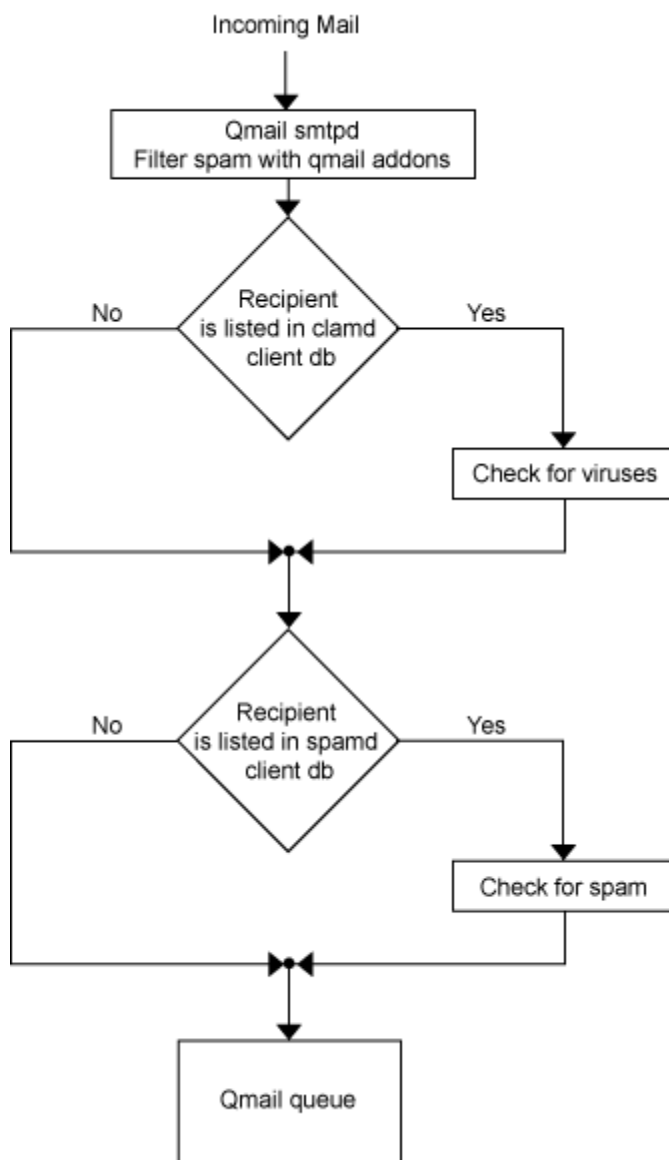
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Antivirus and Antispam Filters (SpamAssassin and ClamAV)

Qmail incorporates SpamAssassin and ClamAV filters at the server level. It uses an improved qmail-queue patch concept, where the use of the QMAILQUEUE variable is replaced with checking recipient addresses against the `clamavclients` and `spamdclients` databases (see the drawing). Parallels H-Sphere users can add their mail addresses to the database to have them checked for spam and viruses. User-defined antispam preferences are stored in a MySQL database.

Mail is filtered by standalone clamd and spamd services. We had to get rid of the Qmail-Scanner perl wrapper, because it is rather heavy and unreliable for high load SMTP servers. Instead, we use clamdmail software, <http://clamdmail.sourceforge.net/>, which is fast and adapted to working with clamd and/or spamd.



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Updating Virus Patterns

Mail server cron has a script that updates virus patterns every day at 12AM. You can manually change the timing of the cron.

Enabling Antivirus and Antispam

ClamAV and Spamassasin have been added to Parallels H-Sphere as resources, and can be enabled and disabled from the control panel:

- 1 **Global Settings.** In **Plans -> Globals**, check **Antispam** and **Antivirus** and click **Submit Query**.
- 2 **Plans.** In **Plans -> Plans** select the plans where you would like to enable spam and virus protection. On the first page of the wizard, enable **Antispam** and **Antivirus**. Optionally, set prices for these resources on the subsequent steps.

Configuring ClamAV and SpamAssassin at the Server Level

- **ClamAV:** edit file `/hsphere/local/config/mail/clamav/clamav.conf`. The format and options of this file are fully described in the clamav.conf(5) manual. Remember - you must remove the "Example" directive. Be careful not to change the values of LocalSocket and TCPSocket.
- **SpamAssassin:** edit file `/hsphere/local/config/mail/spamassassin/local.cf` as suggested in Spamassassin documentation (http://www.spamassassin.org/doc/Mail_SpamAssassin_Conf.html). Note that external modules like Bayesian rules, razor2, dcc, and pyzor are not included, so please be careful not to enable related options.

Restarting ClamAV and SpamAssassin

See Restarting Services (on page 52).

Updating ClamAV Database

Each hour cron updates ClamAV antivirus databases. Execute `crontab -l` to see the list of cron tasks for a mail server. The following line indicates that ClamAV database is updated each hour:

```
0 * * * * /hsphere/shared/bin/freshclam --quiet
```

ClamAV database update is configured in
`/hsphere/local/config/mail/clamav/freshclam.conf`.

User Settings

ClamAV and Spamassassin settings can be configured per maildomain and individual mailbox. Please see Parallels H-Sphere User Guide for details.

Integrated Antispam Addons

Besides SpamAssassin, Parallels H-Sphere Qmail includes a series of third party and in-house antispam addons:

- Fehcom Spamcontrol patch, <http://www.fehcom.de/qmail/spamcontrol.html>, (based on the spamcontrol-2.4.17 release) provided with opportunity to switch whitelist extensions on and off dynamically
- qmail-smtpd badmailfrom-unknown addon, <http://www.lamer.de/maex/creative/software/qmail/103-bmfunk/>
- Qmail patch, <http://www.qmail.org/big-concurrency.patch>, to allow Qmail to use a concurrency greater than 240
- doublebounce-trim patch, <http://www.qmail.org/doublebounce-trim.patch>, to discard doublebounces without queuing them
- Jose Luis Paineira's patch that deletes the body of bouncing messages (<http://qmail.org/qmail-send.mimeheaders.tar.gz>). This patch is based on Fred Lindberg's patch that preserves the MIME-ness of bouncing MIME messages (<http://www.ezmlm.org/pub/patches/qmail-mime.tgz>)
- qmail-maildir++.patch (from Vpopmail distribution)
- Parallels addon that checks if the sender's address in POP-before-SMTP authentication is local and the recipient's address is remote;
- Parallels addon that checks if domain name in the sender's address matches the domain name used in SMTP authentication.
- Andre Oppermann's ext-todo patch, http://www.nrg4u.com/qmail/ext_todo-20030105.patch, which solves the 'silly qmail syndrome'. That's where qmail spends more time processing incoming email than scheduling deliveries.
- big-DNS patch, <http://www.ckdhr.com/ckd/qmail-103.patch>, which fixes oversize DNS packet problem.
- Modified version of Qmail chkuser 0.6 patch (<http://www.shupp.org/>) that checks if the vpopmail recipient is valid before accepting the message.

Qmail Server Settings

Default Qmail server settings, including antispam options, can be configured in the admin control panel in the **E.Manager/Servers/Mail Servers** menu.

➤ *To configure Qmail settings:*

- 1 Select **Mail Servers** from the **E.Manager -> Servers** menu:



- 2 Click the **Action** icon in the **Mail Server Settings** section:



3 Edit qmail settings following on-screen explanations and click **Submit**:

Qmail Server Parameters	
Please be careful while changing these parameters	
tcpsessioncount ?	<input type="text" value="40"/> + (*The number of concurrent SMTP connections)
concurrencyremote ?	<input type="text" value="100"/> + (*The number of qmail-send processes of message delivery to remote addresses)
concurrencylocal ?	<input type="text" value="50"/> + (*The number of qmail-send processes for message delivery to local addresses)
databytes ?	<input type="text" value="0"/> + (*Maximum size of a message)

IMPORTANT:

Values can be of three types:

- **Text:** can be either a line, like @12.34.56.78, or a list, for example a list of addresses in *badmailfrom*.
badmailfrom is the file that contains a list of senders mail isn't accepted from.
- **Number**, like 1000 in *databytes*.
databytes is the file that contains the maximum allowed size of a message.
- **Boolean**, like 0 or 1 in *smtpauth*.
0 disables SMTP Auth, 1 enables it.

Note: 0 is also set by default if the corresponding *control file* is absent.

Thus, for example, if you have to enable SMTP Auth, you create/modify the `/var/qmail/control/smtpauth` control file and put 1 in it. To disable SMTP Auth, put 0 in the control file or just delete the control file.

Also, text values may contain *patterns*: wildcard expressions to set the range of emails, domains and IPs for *filtering rules*.

Control characters in patterns:

- Exclamation mark (!): allows you to INCLUDE particular clients/addresses by simply putting an exclamation mark (!) as first character in the line.
- Asterisk (*): General pattern matching character; one or more preceding.
- Question Mark (?): Match zero or one preceding.
- Backslash (\): Literal expression of following character, eg. \[.

- Match one from a set ([...]): i.e. [Ff][Aa][Kk][Ee] matches FAKE, fake, FaKe, FAKe etc.

Qmail settings:

- `tcpsessioncount`: the number of concurrent SMTP connections. *Default*: 40. After setting this parameter, Qmail restart (on page 56) is required.
- `concurrencyremote`: the number of qmail-send processes of message delivery to remote addresses. *Default*: 100. *Max*: 500. If Max is exceeded, Max value is set.
- `concurrencylocal`: the number of *qmail-send* processes for message delivery to local addresses. *Default*: 50. *Max*: 500. If Max is exceeded, Max value is set.
- `databytes`: maximum size of a message. *Default*: 0 (unlimited).
- `queuelifetime`: the message queue lifetime in seconds. *Default*: 604800 (1 week).
- `bouncefrom`: the email user messages are bounced from. *Default*: MAILER-DAEMON;
- `maxrecipients`: maximum number of recipients in the "TO:", "CC:", and "BCC" fields. *Default*: 0 (unlimited).
- `maxwrongrcpt`: maximum number of wrong recipients in the envelope. *Default*: 0 (unlimited).
- `timeoutsmtpd`: TCP connection timeout in seconds. *Default*: 1200.
- `newline`: accept or reject mail from mail user agents (MUA) that send commands without CR (carriage return). *Default*: 0 (disabled);
- `stripsinglequotes`: enable or disable stripping single quotes (referred to in the spamcontrol manual as the feature that may cause unpredictable results). *Default*: 0 (disabled);
- `lowercase`: enable or disable conversion of mail address to lowercase; it may be useful in filtering patterns, for case-sensitive rules. *Default*: 0 (disabled).
- `badmailfrom`: list of sender addresses whose emails will be rejected. A line in `badmailfrom` may be of the form `@host`, meaning every address at host. *Default*: the `badmailfrom` file is absent (all sender addresses are allowed); See also `splithorizon`.
- `badmailpatterns`: the same as standard `badmailfrom` but with patterns. *Example*:

```
*@earthlink.net
!fred@earthlink.net
[0-9][0-9][0-9][0-9][0-9]@[0-9][0-9][0-9].com
answerme@save*
*%*;
```

Default: the `badmailpatterns` file is absent (all sender addresses are allowed); See also `splithorizon`.

- `badmailfrom-unknown`: if the domain part of sender's address matches a host in this list, qmail checks if sender's IP has a PTR record. *Example*:
<http://www.lamer.de/maex/creative/software/qmail/103-bmfunk/badmailfrom-unknown>. *Default*: the `badmailfrom-unknown` file is absent (reverse DNS check is disabled for all IPs).

- `badhelo`: filter HELO/EHLO sequence issued by SMTP client; See also `splithorizon`.
- `badrcptto`: list of recipient addresses for which all mail is blocked. A line in `badrecipient` may be of the form `@host`, meaning every address at the host. *Default*: the `badrcptto` file is absent (no recipient addresses are blocked).
- `badrcptpatterns`: the same as `badrcptto` but with patterns. It allows `qmail-smtpd` to reject SPAM E-Mail including the signature

```
*\[dd.dd.dd.dd\]*
```

in the `badrcptpatterns` file, where `dd.dd.dd` is the IP address in brackets. *Default*: the `badrcptpatterns` file is absent (no recipient addresses are blocked).

- `blackholedsender`: the same as `badmailpatterns` but quits the session immediately even if `quitasap` is disabled.
- `relayclients`: list of IP addresses of clients allowed to relay mail through this host. Addresses in `relayclients` may be wildcarded:

```
192.168.0.1:
192.168.1.:
```

Default: the `relayclients` file is absent (all client IPs are allowed to relay mail via this host).

- `relaydomains`: list of host and domain names allowed to relay mail through this host. This is an additional mail relay check by the domain name, in case if relay via the `tcp.cdb` static relay database is forbidden. More on mail relays read in *Parallels H-Sphere Service Administrator Guide*, SMTP Mail Relays section.

Addresses in `relaydomains` may be wildcarded:

```
heaven.af.mil:
.heaven.af.mil:
```

Default: the `relaydomains` file is absent (all domains are allowed to relay mail).

- `relaymailfrom`: list of senders ("Mail From:") allowed to relay independently even if open relay is closed. Entries in `relaymailfrom` can be E-Mail addresses, or just the domain (with the `@` sign). Unlike `relaydomains`, native addresses should be entered. Examples:

```
joeblow@domain1.com
@domain2.com
```

Default: the `relaymailfrom` file is absent (no senders are allowed to relay independently).

Important: For antispam security reasons, we strongly recommend not to add this parameter to SMTP configuration.

- `quitasap`: enables (1) or disables (0) quitting of SMTP session immediately if one of the above rules works. *Default*: 0 (no quitting). Enabling this option is recommended only in case of spam attacks or huge spam traffic to your server. If working, `quitasap` breaks SMTP connection if at least one of the following parameters is enabled, the result of its check being negative:
 - SPF check
 - `smdcheck`

- mfdnscheck
- no openrelay for sender IP
- badmailfrom
- badmailfrom-unknown
- badrcptto
- userchk
- maxrecipients
- smtpauth
- antivirus
- antispam
- badhelo
- helodnscheck

Use the `quitasap` option with precaution as breaking of SMTP connection is contrary to the requirements of correct SMTP server operation.

- `tarpitcount`: the number of recipients after which qmail switches on delay before sending the message to the next portion of recipients.
Default: 0 (no tarpitting);
- `tarpitdelay`: the time in seconds of delay to be introduced after each subsequent RCPT TO:. *Default: 5.*
- `mfdnscheck`: enables (1) or disables (0) DNS check of domain name in sender's address. If enabled, no local domain check is performed.
Default: 0 (disabled);
- `nomfdnscheck`: list of domain names that aren't checked for existence. The list has the same format as for relaymailfrom. *Default: the nomfdnscheck file is absent (if mfdnscheck is enabled, all domains are checked for existence);*
- `helodnscheck`: in a manner similar to mfdnscheck, performs check for HELO/EHLO smtp commands instead of RCPT TO:. See also splithorizon.
- `splithorizon`: if 1, helodnscheck, badhelo, badmailfrom, and badmailpatterns checks for SMTP sessions with open relay mfdnscheck are not performed.
- `userchk`: enables (1) or disables (0) check that the vpopmail recipient is valid before accepting the message. *Default: 0 (disabled);*
- `smdcheck`: allows only local domains in the MAIL FROM address if mail is sent remotely. If the option is enabled, SMTP is used, otherwise - Sendmail is.
Default: 0 (any sender address is allowed).
- `authsender`: if set to 1, it requires the domain name in user address during SMTP authentication to coincide with the domain name in the MAIL FROM address field.
 - a By default: '0' if `smtpauth` parameter is OFF.
 - By default: '2' if `smtpauth` parameter is ON.

Note: *value '2' is used as additional procedure providing correct traffic calculation in case of dynamic open relay. In this case, instead of recording mail envelop sender domain, traffic log records the domain used in SMTP authentication).*

- `rblhosts`: RBL (Remote Black List) database hosts. Example:


```
dnsbl.njabl.org
spamguard.leadmon.net
```

Allowed anti-RBL source addition (<http://cr.yip.to/ucspi-tcp/rblsmtpd.html>). Format of anti-RBL source: a:domainname. *Default:* the `rblhosts` file is absent (RBL check is disabled: no external RBL databases is being checked).

Note 1: Parallels H-Sphere Qmail MTA is built with "A" record patch, so it's possible to enable DNSBL, which doesn't support "TXT" DNS records. For instance, Trend Micro Network Reputation Services DNSBL

(<http://us.trendmicro.com/us/products/enterprise/network-reputation-services/index.html>). You can enable its support via Mail Service Settings in the Admin CP. At the moment, you can do it by adding the string:

```
"activationcode.r.mail-abuse.com:blocked using Trend Micro
RBL+, please see http://www.mail-abuse.com/cgi-
bin/lookup?ip_address=%IP%"
```

Note 2:

a Quotation marks are necessary.

b For commercial RBL, like Trend Micro RBL+ (<http://us.trendmicro.com/us/products/enterprise/network-reputation-services/index.html>), after the service is rendered, the corresponding value should be set instead of `activationcode`.

- `qmailssp`: Enables Qmail plugin support. *Default:* 0 (disabled).
- `flagfailclosed`: Always consider dns lookups failure as a temporary error, 451. *Default:* 0 (disabled).
- `flagrblbounce`: Consider RBL error status code as a fatal (553), instead of default policy, temporary error (451). *Default:* 0 (disabled).
- `stricthelocheck` parameter (options file, disabled by default), which considers HELO command obligatory.
- `chksignature`: (options file), which provide badsignatures filtering for mail resources **with enabled antivirus check**. *Default:* 0 (disabled).
- `chkloadertype`: (options file), which provide badloadertypes filtering for mail resources **with enabled antivirus check**. *Default:* 0 (disabled).

Both `chksignature` and `chkloadertype` include a wire-speed filtering of E-Mails containing BASE64 encoded attachments with about 99,5% efficiency:

http://www.fehcom.de/gmail/docu/virus_2004.pdf

Note: *chksignature* provides a robust MIME type identification. Particular MIME types can be added on-the-fly (based on the idea of Russell Nelson's (and Charles Cazabon's) to filter Windows executables attached as BASE64 encoded MIME parts in the E-Mail. Included the following signatures, which detect specific common, double and triple Base 64 Windows Executable (control/badsignatures):

TVqQAAMAA
TVpQAAIAA
TVpAALQAc
TVpyAXkAX
TVrmAU4AA
TVrhARwAk
TVoFAQUAA
TVoAAAQAA
TVoIARMAA
TVouARsAA
TVrQAT8AA
TVrvAEQAe
UESDBAoAA
VFZxUUFBT
VkZaeFVVR
ZGltIGZpb

Note: *chkloadertype* provides a high efficient and unique Loader type recognition. Though this procedure is more heavy, than signature check and is less recommended. Predefined loadertype check is oriented on the Kernel32.dll search (specific Loader types for the Windows OS are included in control/badloadertypes):

Mi5kb
MzIuZ
MyLmR
MyLkR
Mi5ET
My5le

Note: The list of signatures is static, not configurable via CP interface. If you want to add something, you should edit the corresponding control files: *badloadertypes* and *badsignatures*.

- **sms:** Restriction of *Max messages for one email* value for Mail SMS resource (Max value: 3). *Default:* 3.
- **spamglobal:** Antispam check of all incoming mail. *Default:* 0 (disabled).
- **clamglobal:** Antivirus check of all incoming mail. *Default:* 0 (disabled).
- **skipcachk:** ClamAV (Antivirus Filter) check restriction. *Default:* 0 (disabled).
- **skipsachk:** Spamassassin (AntiSpam Filter) check restriction. *Default:* 0 (disabled).
- **periplimit:** enter the number of simultaneous SMTP connections from the same IP.

- `noathost`: demands fully qualified domain email address in RCPT TO and MAIL FROM smtp commands. *Default: 0* (disabled). If you enable this parameter, you will never get reject/bounce messages, or return receipts, and you may get other mail server admins upset at you if they have to deal with your bounce messages. Since this is contrary to the requirements of correct SMTP server operation (Mailservers are required by RFC1123 5.2.9 to accept mail from "<>"), use `noathost` parameter with precaution.
- `sanetcheck`: enables/disables network check for SpamAssassin. *Default: 0* (disabled). By default, SpamAssassin performs only local tests. By enabling this parameter you can also enable network tests for SpamAssassin, such as DCC_CHECK (Distributed Checksum Clearinghouse is an anti-spam content filter), URIDNSBL (look up URLs found in the message against several DNS) etc. These network test use internet resources. Network tests must be set in the additional configuration file (`/hsphere/local/config/mail/spamassassin/custom.cf`). A path to this file is set via the `include` directive of the main SpamAssassin `local.cf` file. Use this additional configuration file for plugins and options of SpamAssassin.
- `spamdchildren`: specifies the number of forked spamd child processes. *Default: 10*. We recommend to increase it for servers with large number of smtpd connections.
- `rcptdnschecks`: allows only existing mail domain names of recipients. *Default: 0* (off).
- `uquotacheck`: provides message bouncing during SMTP session in case of mailbox quota overflow. *Default: 0* (off).
- `localtime`: provides generation of date stamps in local timezones for various qmail programs. *Default: 0* (off).
- `samsgsize`: maximum message size, in bytes to be send to spamd.
- `catchall`: provides ability to disable the work of 'Catch All' options independently of user settings. *Default: 1* (enabled).
- `rejectdiscardedmail`: rejects incoming messages to mailboxes with discard option at SMTP level. *Default: 0* (disabled).
- `skipsachk`, `skipcachk`: skip Spamassassin (SA)/Antivirus (CA) check:
 - `skipcachk=0` and/or `skipsachk=0` or absent: default settings - always CA and/or SA check, if enabled
 - `skipcachk=1` and/or `skipsachk=1`: for SMTP authenticated users CA and/or SA heck skipped
 - `skipcachk=2` and/or `skipsachk=2`: for SMTP connections with dynamic or static open relays or for SMTP authenticated users CA and/or SA check skipped

Note: As an example of patterns, see the canonical method filter for spam e-mail in README_SPAMCONTROL (http://www.fehcom.de/qmail/spamcontrol/README_spamcontrol.html).

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Mail Client Headers

X-Originating-IP and X-Envelope-To mail client headers are included in Parallels H-Sphere by default. They introduce the following controls:

- `xoriginatingip`: includes X-Originating-IP header into mail client according to AOL recommendations, <http://postmaster.aol.com/faq/forwarding.html> (enabled by default)
- `xenvelopetoheader`: includes X-Envelope-To header which is required by some mail clients to identify real envelope sender (disabled by default)

Autoresponder Settings

Parallels H-Sphere provides autoresponder policy. Enter the necessary parameters and click **Submit**:

Autoresponder settings	
patterns_policy ?	<input checked="" type="checkbox"/> 1/0 (* Autoresponder works only if Sender Filter is set in user CP)
autoreply_policy ?	Check domain sender on IP level ▼
	Common behaviour
	Check domain sender on subnet level
	Check domain sender on IP level

- `patterns_policy` - autoresponder is working only if Sender Filter is configured in user CP. The default value is 0 (disabled).
- `autoreply_policy` - provides autoreply if SENDER originating IP corresponds to a target recipient IP or Subnet only

Bounce Message Customization

Parallels H-Sphere enables bounce and doublebounce messaging in case mail failed to be delivered. Enter the necessary parameters and click **Submit**:

- `bouncingip`: *parameter removed in Parallels H-Sphere 3.0 RC 2, added a separate Outgoing IP to mail server. Once you add it via Admin CP, it will disappear from Qmail parameters.*
- `bouncefrom`: the email user messages are bounced from. *Default: MAILER-DAEMON;*
- `bouncehost`: the literal name or bouncehost IP. If a message is permanently undeliverable, qmail-send sends a single-bounce notice back to the message's envelope sender, from: bouncefrom@bouncehost. *Default: mail server name.*
- `doublebouncehost`: the literal name doublebouncehost or IP. If a single-bounce notice is permanently undeliverable, qmail-send sends a double-bounce notice to doublebounceto@doublebouncehost. *Default: mail server name.*
- `doublebounceto`: the user email to receive doublebounce messages.
- `bouncesubject`: enter bounce message subject.
- `bouncemessage`: enter the text of the bounce message.
- `doublebouncesubject`: enter doublebounce message subject.
- `doublebouncemessage`: enter the text of the doublebounce message.
- `temperror`: considers temporary error a permanent one for local, remote, and local & remote mails.
- `strictbounce`: strictbounce allows for bounce to act as double bounce and for bounce and double bounce to act as triple bounce (when bounce message is discarded).

Mail Protocols

Choose a system SMTP relay for your mail server - POP before SMTP and SMTP AUTH.

- `smtpauth`: enables SMTP AUTH extension
Default: 0 (AUTH LOGIN/PLAIN/CRAM-MD5 SMTP extension is disabled)
- `popbeforesmtp`: enables POP-BEFORE-SMTP
- `opensmtptimeout`: allows to set open relay lifetime, in minutes, after POP-before-SMTP authentication. *Default: 180 min.*

SPF (Sender Policy Framework)

Parallels H-Sphere's SPF (on page 181) implementation at the SMTP server level is based on this qmail patch: <http://www.saout.de/misc/spf/>. It introduces the following qmail controls:

- `spfbehavior`: turns SPF checking on/off. The default value is 0 (off). You can specify a value between 0 and 6:
 - 0: Never do SPF lookups, don't create Received-SPF headers
 - 1: Only create Received-SPF headers, never block
 - 2: Use temporary errors when you have DNS lookup problems
 - 3: Reject mails when SPF resolves to *fail* (*deny*)
 - 4: Reject mails when SPF resolves to *softfail*
 - 5: Reject mails when SPF resolves to *neutral*
 - 6: Reject mails when SPF does not resolve to *pass*

Values bigger than 3 are strongly discouraged.

Important: This setting can be overridden using the environment variable `SPFBEHAVIOR`, e.g. from `tcpserver` rules.

Note: If `RELAYCLIENT` is set, SPF checks won't run at all. (This also includes SMTP-AUTH and similar patches)

- `spfrules`: sets a line with local rules, i.e., rules that are executed before the real SPF rules for a domain would fail (*fail*, *softfail*, *neutral*). They are also executed for domains that don't publish SPF entries.
- `spfguess`: sets a line with guess rules, i.e., rules that are used if the domain doesn't publish SPF rules. The local `spfrules` are always executed afterwards.
- `spfexp`: customized SPF explanation. The explanation is the line returned to the SMTP sender when a mail is rejected at the SMTP level. You can use macro expansion. If a domain specifies its own explanation it is going to be used instead. The SMTP answer when rejecting mails will look like: `550 the expanded SPF explanation (#5.7.1)`

SRS (Sender Rewriting Scheme)

SRS (on page 181) is implemented with the following qmail control files located in the `/var/qmail/control/srs` directory:

- `revers_srs_secrets`: contains keys called *secrets* to form *hash* for SRS address for reverse mail. The file contains the list of secrets, each in separate line. The most recent key is on top of the list. Qmail takes it first when checking SRS address, and if it doesn't fit, Qmail takes these keys one after another. If none fit, the message will be rejected. The file has 400 permissions and `vpopmail:vchkpw` ownership.
- `srs_secrets`: secrets for SRS address in forwards. The file has 400 permissions and `qmail:qmail` ownership.
- `srs_secrets_age`: an auxiliary file containing information when each key in `revers_srs_secrets` and `srs_secrets` was created. It is generated by the `/var/qmail/bin/setsrsecret` script and consists of the lines in the following format:

```
key timestamp
```

- `srs_max_age`: an integer value (in seconds) for the maximum permitted age of a rewritten address. SRS rewritten addresses expire after a specified number of days after which it is assumed no more bounces may be generated in response to the original mail. Mail sent to expired SRS address is dropped without ceremony. The default (about a month) should be appropriate for all purposes.

These controls are initiated and set by running the `/var/qmail/bin/setsrsecret` script. You can run this script also as cron (on page 33) on mail servers.

Read more about SRS qmail controls at <http://www.libsrs2.org/docs/index.html>.

Command Line Qmail Configuration

Qmail installation directory is usually `/var/qmail/`.

SMTPd configuration files are also called *control files*. Each SMTP parameter is configured in its own control file with the same name, for example, `/var/qmail/control/smtpauth` for `smtpauth` parameter.

All controls are placed in one configuration file, `/var/qmail/control/options`.

To view SMTP server configuration, run the `qmail-showctl` utility, under root:

```
# /var/qmail/bin/qmail-showctl
```

You will get the list of SMTP parameters. Each line in the list has the following format:

```
smtp_parameter: [(Default.)] Value
```

Each *smtp_parameter* may be set in its own control file with the same name located in the `/var/qmail/control` directory.. The file contains the parameter's *value*. If the file is not found, the default value is taken and the default notification `(Default.)` shows up in the configuration list.

Syslog Facility/Level Configuration For rblsmtpd

rblsmtpd is a generic tool to block mail from RBL-listed sites. It is located in `/hisphere/shared/bin/rblsmtpd`.

It is possible to customize syslog facility/level settings for rblsmtpd to redirect messages to custom log files. The following facilities/levels are customizable (read `man 3 syslog` for details):

Facilities	Levels
LOG_AUTH LOG_AUTHPRIV LOG_CRON LOG_DAEMON LOG_FTP LOG_KERN LOG_LOCAL0 ... LOG_LOCAL7 LOG_LPR LOG_MAIL (default) LOG_NEWS LOG_SYSLOG LOG_USER LOG_UUCP	LOG_EMERG LOG_ALERT LOG_CRIT LOG_ERR LOG_WARNING LOG_NOTICE (default for FreeBSD) LOG_INFO (default for Linux) LOG_DEBUG

Custom facility/level records are set in the `/var/qmail/control/rblsyslog` file, for example:

```
LOG_LOCAL7:LOG_WARNING
```

Also you must add the respective record in `/etc/syslog.conf` (see `man syslog.conf` for details) to redirect messages to a new log file, for example:

```
local7.warn /var/log/myrbllog
```

File `/var/qmail/control/sysfacility` contains name of syslog facility (one from among `LOG_LOCAL0 ... LOG_LOCAL7`) used to gather mail traffic statistics (on page 192).

SMTP Log

Maillog format is extended:

- remote IPs of SMTP sessions are logged by default;
- **smtplog** parameter is introduced in the `/var/qmail/control/options` file:
 - 0 default logging mode
 - 1: restricted mode of SMTP session logging
 - 2: complete SMTP logging

This parameter is not included in CP and is not modified in admin interface, as it serves for debug purpose only.

Mail Client and ESMTP Destination Server

Mail client can check if the following extensions are available on the destination server and, if so, use them.

- ESMTP STARTTLS extension defined in RfC RFC3207
- ESMTP SIZE extension defined in RfC 1870
- ESMTP PIPELINING extension defined in RfC 2920

By default, only `ESMTP SIZE/PIPELINING` check is provided if destination server supports them.

Switching over `qmail-remote` client to use them is made via `mconnectext` control file with content of the following format:

```
iii
```

where `i` equals 0 or 1 and

- First 'i' corresponds to STARTTLS
- Second 'i' corresponds to SIZE
- Third 'i' corresponds to PIPELINING

Qmail-spp Support

Parallels H-Sphere adds a qmail-spp engine (<http://qmail-spp.sourceforge.net/>) which provides plugin support to qmail's SMTP daemon (qmail-smtpd). It's written entirely in C using native qmail libraries, so it does not create any dependencies. Qmail-spp engine implementation is aimed to add `rblspp` plugin as a replacement for `rblsmtpd`.

To make the server and plugins work faster, follow the rules:

- Use the engine only as circumstances may require, i.e. to add new plugins
- Do not run plugins via system shell, that means without adding ":" just before plugin path. Avoid command line parameters or plugins written on shell/perl
- Use full pathes to plugins
- Accumulate functionality in one particular plugin rather than use different plugins

Configuration Details

Qmail-spp support can be enabled via CP interface and configured in `/var/qmail/control/options` file (qmailspp boolean parameter). When qmail-spp engine is involved, qmail-smtpd tries to read the main default configuration file of qmail-spp `/var/qmail/control/smtpplugins` that consists of few sections one for each command:

```
connection - for plugins run just after client connection
helo - for HELO/EHLO
mail - for MAIL
rcpt - for RCPT
data - for DATA
auth - for AUTH
```

Mind that you have to specify full pathes to plugins while configuring qmail-spp. To find more info on syntax, refer to qmail-spp documentation (<http://qmail-spp.sourceforge.net/doc/>).

To add plugins to conf file, use the following utility:

```
/var/qmail/bin/spp-conf -h
```

Usage:

```
-a|-r|-R -h -b -s -p plugin_name -t category_name
plugins must be located at /var/qmail/control/plugins directory.
plugin_name: relative plugin name
category_name: connection, auth, helo, mail, rcpt, data
-a : add plugin (by default)
-r : remove plugin
-R : remove all plugins
-b : input from stdin set of rows, format: category_name;plugin_name
-s : plugin is executed via shell -i : check and fix plugin permissions
```

Qmail TLS Support

In mail service configured with SSL, TLS is disabled by default (`mail-ssl-proto` script was used to switch it on).

To enable TLS support (with possible protocols: SSLv2, SSLv3, TLSv1, by default SSLv3 only), run:

```
/hsphere/local/config/mail/scripts/mail-ssl-proto -r -t SSLv3,TLSv1
```

Where:

- `mail-ssl-proto` script sets list of SSL protocols used by mail service.
- `-r` provides mail service restart.

Integrated Plugins

Rblspp Plugin

Rblspp plugin was added as a replacement for `rblsmtpd`. It resolves the RBL check delay problem for successful SMTP authenticated connections. For this, `ucspi-tcp-0.88-rblspp.patch` patch was combined with (<http://xs3.b92.net/tomislavr/qmail.html#ii>) `ifauthskip.c`, and command line parametres were removed to speed up the plugin launch.

If RBL check is involved but plugin support is disabled, default `rblsmtpd` scheme is used.

Choosing Remote MySQL Logical Server for SpamAssassin

Parallels H-Sphere mail logical server is by default installed on a physical box together with Web and MySQL servers on the same box, thus SpamAssassin uses MySQL database on the same server.

It is made possible to choose an alternative remote MySQL server for SpamAssassin database. This is in particular important for the implementation of load balanced mail cluster (on page 406) where it is required that SpamAssassin is configured to use remote MySQL servers.

➤ **To choose a remote MySQL server for SpamAssassin:**

- 1 Login as **cpanel user** (on page 65) and set the following property in
~cpanel/shiva/psoft_config/hsphere.properties:

```
EXTERNAL_SERVICE_USAGE = TRUE
```

Then, restart Parallels H-Sphere (on page 54) to apply changes.

Important: If EXTERNAL_SERVICE_USAGE is not set or is not TRUE, you won't be able to choose an external MySQL server for SpamAssassin!

- 2 In admin CP, go to **E.Manager -> Servers -> L.Servers**, proceed to settings for this mail logical server, and select a MySQL server from the **Choose External Spamassassin DB Server** dropdown menu in Mail Server Additional Options.
- 3 Login to CP server as root, download and run the Parallels H-Sphere 3.0 RC 4+ updater with the hspackages reconfig option:

```
hspackages reconfig=spamassassin
```

Note: Regular Parallels H-Sphere update to 3.0 RC 4 and up automatically includes the `reconfig` option. However, for best performance we recommend running Parallels H-Sphere updater with this option separately.

- 4 To move SpamAssassin DB content from the older local MySQL DB, run the following script on the source box:

```
/hsphere/pkg/scripts/uprocedures/dbs_content -h
```

Usage:

```
dbs_content [ -h ] -d dbtype [ -i ip ] [ -p password ]
```

dbtype: horde or spamassassin or phpmyadmin

ip: this option is required only in the case, if redefinition took place from current external MySQL server to another one or MySQL service, located on the corresponding mail logical server.

password: this option is required only in the case, if redefinition took place from current external MySQL server to MySQL service, located on the corresponding mail logical server.

SPF and SRS

Sender Policy Framework (SPF) (<http://spf.pobox.com/>) is a mechanism for preventing sender forgery in SMTP transaction, thus allowing domain owners control over who may send mail from their domain.

Sender Rewriting Scheme (SRS) (<http://spf.pobox.com/srs.html>) is a mechanism for rewriting sender addresses when a mail is forwarded in such a way that mail forwarding continues to work in an SPF compliant world.

SRS can work without SPF, but not vice versa, i.e., issues with forwards may arise if SPF is implemented without SRS.

WARNING: If SRS is enabled in Parallels H-Sphere, the problems may arise with forwarding mail to servers where SRS is not supported. In such cases, mail may return undelivered back to users. The next Parallels H-Sphere mail service package will provide a more friendly way to handle forwards to such servers.

This documentation explains the arrangement of these resources at the server level. Please read how to enable and configure SPF and SRS in admin CP in Parallels H-Sphere Service Administrator Guide.

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SPF (Sender Policy Framework)

SPF is implemented at the level of:

- DNS TXT records
- SMTP server.

DNS TXT Records

Once the SPF resource is enabled in Parallels H-Sphere, DNS TXT records will be provided for each A and MX records in **E.Manager->DNS Manager**.

DNS TXT records have the following format:

```
domain.com IN TXT "v=spf1 spf_string"
```

Here, `spf1` is SPF version, and `spf_string` takes the combination of the so-called **mechanisms**: "a, ptr, mx, ip4, include, all". `all` is a finalizing mechanism and must be placed at the end.

Please read more explanations on mechanisms in TXT DNS records (<http://spf.pobox.com/mechanisms.html>).

Each mechanism may have a prefix pointing to a certain type of processing messages:

- - fail (message is rejected)
- ~ softfail (message is passed with warning)
- + pass (message is passed - the default prefix value)

? neutral Thus, the simplest SPF record will be:

```
domain.com IN TXT "v=spf1 -all"
```

It means that you deny sending any mail from this domain, i.e., you may use this domain for any hosting except mail hosting. (-all is thus somewhat similar to deny all in Apache).

Example:

Consider the following record:

```
domain.com IN TXT "v=spf1 mx a:test.com/24 ptr:test2.com -all"
```

If a message is sent with MAIL FROM: test@test3.com and from the client IP 4.5.6.7, SMTP server will check:

- a whether test3.com MX records (at least one of them) are resolved to IP 4.5.6.7;
- b whether the IP 4.5.6.7 is in a test.com's IP subnet (mask 255.255.255.0);
- c whether the PTR record for IP 4.5.6.7 is resolved to test2.com;

If none of the above conditions are met, then the last directive `-all` meaning "deny all other" takes effect, and the message will be rejected.

The `include` directive is used if you wish to delegate SPF check for another domain, for example:

```
"v=spf1 include:example.net -all"
```

SMTP Server

At the level of qmail server, the following SMTP parameters should be configured in respective files in `/var/qmail/control` directory:

- `spfbehavior`
- `spfrules`
- `spfguess`
- `spfexp`

For more details, refer to Qmail Configuration (on page 160) and SPF Implementation for Qmail (<http://www.saout.de/misc/spf/>).

SRS (Sender Re-write Scheme)

SRS mechanism is used in two cases:

- To form SRS-compliant mail address for forwarding messages via forward mail resources, in accordance with SRS convention;
- To form reverse SRS-compliant reverse mail address in case of reply.

Parallels H-Sphere provides the following Qmail controls for SRS (they are located in the `/var/qmail/control/srs/` directory):

- **SRS secrets files:** `reverse_srs_secrets` (for reverse mail) and `srs_secrets` (for forwards). These files contain a set of lines with keys, each key in a separate line. These keys, called `secrets`, are used to validate hash from SRS formatted e-mail address. The most recent key is on top of the list. Qmail takes it first when checking SRS address, and if it doesn't fit, Qmail takes these keys one after another. If none fit, the message will be rejected.

The `reverse_srs_secrets` file has 400 permissions and `vpopmail:vchkpw` ownership.

The `srs_secrets` file has 400 permissions and `qmail:qmail` ownership.

- `srs_maxage` - an integer value for the maximum permitted age of a rewritten address. SRS rewritten addresses expire after a specified number of days after which it is assumed no more bounces may be generated in response to the original mail. Mail sent to expired SRS address is dropped without ceremony. The default (about a month) should be appropriate for all purposes.

For details, please refer to <http://www.libsrs2.org/docs/index.html>.

The script `/var/qmail/bin/setsrsecret` runs as cron (on page 33) on mail servers to set these controls.

Updating SpamAssassin Rulesets Automatically

Below are two scripts used for automatical update of SpamAssassin rulesets.

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Sa-update Script

Sa-update (<http://saupdates.openprotect.com/>) is a script aimed at the dynamic update of basic spam assassin rules to catch different kind of spam. It provides a possibility to add other channels, but at your own risk.

By default sa-update script is located at:

- `/hsphere/local/config/mail/spamassassin/sa-update-keys` - pgp key-rings. It is automatically formed in the post install section for default chanel.
- `/hsphere/local/config/mail/spamassassin/sa-update` - directory where updated rules are located.

The `/hsphere/local/config/mail/spamassassin/scripts/saupdate` script that updates/checks for new rules can be customized according to your own needs by adding new rules. This script remains untouched after further hsphere-mail-service updates.

Rules Du Jour Script

RulesDuJour (<http://www.exit0.us/index.php?pagename=RulesDuJour>) is a bash script aimed at automatical download of new versions of SpamAssassin rulesets as the authors release new versions. As FreeBSD does not include bash by default, Parallels H-Sphere mail service package containing RulesDuJour also includes the bash installation for FreeBSD. This script must run daily as a **cron task** to keep additional custom SpamAssassin rules up to date.

At the mail server level, RulesDuJour is implemented by the following scripts:

- Initialization script:
/hsphere/local/config/mail/spamassassin/scripts/init_rules_du_jour
- Deletion script:
/hsphere/local/config/mail/spamassassin/scripts/delete_rules_du_jour
- RulesDuJour SA ruleset update script:
/hsphere/local/config/mail/spamassassin/scripts/rules_du_jour

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Initialization Script

Initialization script is launched upon enabling the **Automatic Ruleset Update (Rules Du Jour)** option in **SpamAssassin Manager** via the administrator control panel:

- 1 It creates the default RulesDuJour config file
/hsphere/local/config/mail/spamassassin/rulesdujour. The init script syntax (run it with the -h option to get help):

```
#
/hsphere/local/config/mail/spamassassin/scripts/init_rules_du_jour -h
```

Usage:

```
init_rules_du_jour [ -r rulesets ] [ -e email ]
rulesets: list of comma separated ruleset; possible values:
TRIPWIRE EVILNUMBERS SARE_RANDOM (default: all)
email: address where e-mail notifications on SA rulesets
update go (default: none)
```

The script is used to set values for SA rulesets to be updated and the e-mail address where update notifications will be sent. See Configuration File for details.

- 2 It adds the RulesDuJour SA ruleset update script
/hsphere/local/config/mail/spamassassin/scripts/rules_du_jour to mail server cron jobs (on page 33) starting daily at 1:00 AM:

```
0 1 * * *
/hisphere/local/config/mail/spamassassin/scripts/rules_du_jour
```

Configuration File

Initialization forms the RulesDuJour config file

/hsphere/local/config/mail/spamassassin/rulesdujour. It has the following format:

```
# cat rulesdujour.default
TRUSTED_RULESETS="TRIPWIRE EVILNUMBERS SARE_RANDOM"
SA_DIR=/hsphere/local/config/mail/spamassassin
EMAIL_RDJ_UPDATE_ONLY=
SINGLE_EMAIL_ONLY=true
MAIL_ADDRESS=
SA_LINT="/hsphere/shared/bin/spamassassin --lint"
SA_RESTART="/etc/rc.d/init.d/spamd restart"
TMPDIR="${SA_DIR}/RulesDuJour"
```

This sample config file is for Linux servers. For FreeBSD, it has a different spamd restart format:

```
SA_RESTART="/usr/local/etc/rc.d/spamd.sh restart"
```

Two config files variables - **TRUSTED_RULESETS** and **MAIL_ADDRESS** - can be set by the init script and via Control Panel at the **SpamAssassin Manager** page:

- **TRUSTED_RULESETS** - choose under what categories custom rulesets need to be included and updated:
 - **BLACKLIST** a blacklist of spammers.
 - **BLACKLIST_URI** looks for these domains inside URL's in the message.
 - **BOGUSVIRUS** lists bogus virus warnings and similar.
 - **RANDOMVAL** list of tags spammers sometimes forget to convert in spam.
 - **SARE_ADULT** designed to catch spam with "Adult" material.
 - **SARE_BAYES_POISON_NXM** using lists of words with equal length.
 - **SARE_BML** designed to catch "business, marketing and educational" spam.
 - **SARE_BML_PRE25X** designed to catch "business, marketing and educational" spam.
 - **SARE_FRAUD** designed to catch "Nigerian 419", "International Lotto", etc. type scams.
 - **SARE_FRAUD_PRE25X** designed to catch "Nigerian 419", "International Lotto", etc. type scams.
 - **SARE_HEADER** contain Header rules that are not found in other SARE rulesets.
 - **SARE_OEM** tries to detect people selling OEM software to consumers.
 - **SARE_RANDOM** tries to detect common mis-fires on bulk mail software. Many signs are found like: %RND_NUMBER, etc.
 - **SARE_SPECIFIC** ruleset which flags specific spam and/or spam from specific spammers.

- **SARE_SPOOF** tries to detect common spoofing attempts by spammers. Many use a Message-ID of one provider but the message was never passed through the suggested system.
- **TRIPWIRE** searches for 3 characters that shouldn't be together. This is based on the English language.
- **RANDOMVAL** lists tags spammers sometimes forget to convert in spam.
- **SARE_EVILNUMBERS** lists addresses and phone numbers harvested from spam.
- **SARE_GENLSUBJ** contains Subject header rules that are not found in other SARE rulesets.
- **SARE_HIGHRISK** is developed because there are spam signs which readily detect spam, and which in our testing do not flag significant ham, but theoretically there is no reason for such rules not to flag ham. We therefore consider these to be "high risk" rules, useful for many systems at this time, but not suitable for systems that must be very conservative and cautious in their spam detection.
- **SARE_HTML** contains HTML coding rules that detect various spammer tricks applied through HTML coding within messages.
- **SARE_OBFU** looks for obfuscation within emails. It looks for the various tricks spammers use to hide their message from spam filters, while keeping their messages readable to humans. It treats these as spamsign.
- **SARE_REDIRECT** detects commonly abused redirectors and uri obfuscation techniques.
- **SARE_SPAMCOP_TOP200** contains top 200 spam relays condensed into as few rules as possible.
- **SARE_STOCKS** contains set of rules for stock spams.
- **SARE_UNSUB** looks for common unsubscribe phrases and codes in spam.
- **SARE_URI** contains files look for spamsign in URI links within emails. It is not intended to replace SURBL or BigEvil, but instead will use characteritics that these domain-based tests cannot track.
- **SARE_WHITELIST** used to whitelist newsletters and mailing lists that are controlled/monitored to be free of spam, but might occasioanlly be flagged as spam by SpamAssassin because of "spammy" contents.
- **ZMI_GERMAN** contains German ruleset.
- **MAIL_ADDRESS** - the e-mail address where SA ruleset update notifications will be sent. If the field is empty, no notifications will be sent.

Migrating Mail Server/IP

➤ *To move the mail server to another machine:*

1 Prepare Servers

1. Prepare a new box with a mail server using Parallels H-Sphere installer as described in Parallels H-Sphere Adding Servers and Services Guide.
2. Create a new physical server and add a mail server group (or add this group to the physical server you are planning to move mail server to).
3. Disable signup for the mail server.

2 Move Mail Content

1. As the cpanel user (on page 65), ssh to your **target** mail server:

```
ssh root@<TARGET_MAIL_SERVER_IP>
```

2. Move the following directories from the source to the target mail server:

```
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/hsphere/local/var/vpopmail/domains/
/hsphere/local/var/vpopmail/domains/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/hsphere/local/var/vpopmail/etc/
/hsphere/local/var/vpopmail/etc/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/var/qmail/control/
/var/qmail/control/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/var/qmail/users/ /var/qmail/users/
rsync -arzgop -e ssh root@<SOURCE_MAIL_SERVER_IP>:~mysql/horde/
~mysql/horde/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:~mysql/spamassassin/
~mysql/spamassassin/
```

3 Update System Database

1. Stop the Control Panel (on page 54).
2. Log into the Parallels H-Sphere system database (on page 65) and run the following queries:

```
update l_server set p_server_id=<TARGET_PHYSICAL_SERVER_ID> where
id=<MAIL_LOGICAL_SERVER_ID>;
(1 record)
update l_server_ips set ip='<TARGET_MAIL_SERVER_IP>',
mask='<TARGET_MAIL_SERVER_MASK>' where
l_server_id=<MAIL_LOGICAL_SERVER_ID> and flag=4;
(1 record)
```

3. Start the Control Panel (on page 54).

4 Update Reseller's Server Aliases

As the cpanel user, run the following java tool:

```
java psoft.hsphere.tools.ServerAliasesRenamer --lserver
<MAIL_LOGICAL_SERVER_ID>
```

5 Mail Content Final move

1. Stop the mail and mysql service (on page 52) on the source server
2. As the cpanel user (on page 65), ssh to your **target** mail server:

```
ssh root@<TARGET_MAIL_SERVER_IP>
```

3. Repeat rsync commands from Step 2 from the target server

```
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/hsphere/local/var/vpopmail/domains/
/hsphere/local/var/vpopmail/domains/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/hsphere/local/var/vpopmail/etc/
/hsphere/local/var/vpopmail/etc/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/var/qmail/control/
/var/qmail/control/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:/var/qmail/users/ /var/qmail/users/
rsync -arzgop -e ssh root@<SOURCE_MAIL_SERVER_IP>:~mysql/horde/
~mysql/horde/
rsync -arzgop -e ssh
root@<SOURCE_MAIL_SERVER_IP>:~mysql/spamassassin/
~mysql/spamassassin/
```

4. Start the mysql service (on page 52) if you have a mysql service on the source box.

6 Enable Qmail Forwarding For The Time of DNS Propagation

The possibility to use POP3-before-SMTP and SMTP AUTH Authentication for the time of migration has been implemented since mail2-all4 (/misc/mail2_all4.html). If your Parallels H-Sphere uses an older mail package, please skip this step.

1. Start source mail server with the "forward" parameter:

```
/etc/init.d/qmaild forward
```

When prompted *"Enter IP address of the destination mail server: "*, enter the IP of the target physical server. This IP will be added to files /var/qmail/control/destip and /var/qmail/control/smtproutes and will be used for further server restarts.

2. On the target mail server, add the IP of the source server as an IP with open relay.

NOTE: qmail forward switches the source SMTP server into relay mode and forwards POP3 traffic to the target server with simultaneous POP3-before-SMTP authentication on the source box. This is done to keep using the old box until the target server's DNS settings are propagated across the Internet. It usually takes up to 2 or 3 days. After that, you can stop the source server.

7 Change the A DNS record for main zone.

Go to the **E-Manager** -> **DNS Manager** and delete the A DNS record with the old IP and add it with the new IP.

8 Finish off the migration

1. Check if you have `~qmaild/control/outgoingip` file. If yes, change the IP in this file to the new one.
2. Restart qmail service (on page 52) on the target box.
3. On CP server, check the `~cpanel/shiva/psoft_config/hsphere.properties` file. Here, find the `SMTP_HOST` parameter. If it is set to the old mail server IP, reset it to the new IP or to the SMTP server's hostname.
4. If `SMTP_HOST` parameter was changed, restart the Control Panel (on page 54).

9 Check mail server functionality.

Moving Mail Domains

Moving mail domains in Parallels H-Sphere is not fully automated, which means it can be applied to individual domains or small groups of domains. The below procedure doesn't work well with large groups of mail domains or entire resellers.

Please be prepared that due to the propagation of the new IP address, mail domain move can result in up to 24 hour downtime and inability to edit the mail boxes.

➤ **To move a group of user domains from one mail server to another:**

- 1 On the new mail server, log in as root and run the following commands for each domain:

1. Register a new mail domain:

```
~vpopmail/bin/vadddomain <DOMAIN_NAME> <ANYPASS>
```

2. If the domain you are moving has domain aliases, set up each alias by the following command:

```
~vpopmail/bin/vaddaliasdomain <DOMAIN_NAME> <ALIAS_NAME>
```

3. Get the location of this domain directory:

```
~vpopmail/bin/vdominfo <DOMAIN_NAME>
```

4. Remove the content of this directory:

```
rm -rf <DOMAIN_DIRECTORY>
```

5. Copy the content of the original maildomain directory from the source server:

```
scp -r root@<OLD_SERVER_IP>:<SOURCE_DOMAIN_DIRECTORY>  
<DOMAIN_DIRECTORY>
```

6. Update ownership of the domain directory and its content:

```
chown -R vpopmail:vchkpw <DOMAIN_DIRECTORY>
```

where:

<DOMAIN_NAME> is the mail domain

<ANYPASS> is any string. Later it will be replaced with the real password

<DOMAIN_DIRECTORY> is the location of the domain directory on the target server

<SOURCE_DOMAIN_DIRECTORY> is the location of the domain directory on the source server

<OLD_SERVER_IP> is the IP address of the source mail server.

7. Restart mail server (on page 56) to apply changes.

- 2 If the domain directory path is different on the source and target servers:

1. Go to the domain directory on the target server and update all mailbox paths in the vpasswd file and all files that have names beginning with .qmail-.

2. Add and delete a temporary mailbox to apply changes:

```
[root@mail3 example.com]# ~vpopmail/bin/vadduser
blala@example.com
Please enter password for blala@example.com:
enter password again:
[root@mail3 example.com]# ~vpopmail/bin/vdeluser
blala@example.com
```

- 3 On the old mail server, log in as root and delete the domains using this command for each domain:

```
~vpopmail/bin/vdeldomain <DOMAIN_NAME>
```

- 4 **Important!** Back up the Parallels H-Sphere system database.
- 5 Log into the system database (on page 65) and run the following queries:

1. Set new logical server id for each domain name:

```
UPDATE mail_services SET mail_server=<NEW_LSERVER_ID> WHERE
id=(SELECT child_id FROM parent_child WHERE child_type=1000
AND parent_id=(SELECT id FROM domains WHERE
name='<DOMAIN_NAME>'));
```

2. Get current values from the MX and CNAME records for the moved domains:

```
SELECT r.id, r.name, r.type, r.data, r.ttl, r.pref FROM
domains d, parent_child p1, parent_child p2, dns_records r
WHERE d.name='<DOMAIN_NAME>' AND d.id = p1.parent_id AND
p1.child_type=1000 AND p1.child_id = p2.parent_id AND
p2.child_id = r.id AND (p2.child_type=1007 OR
p2.child_type=3006);
```

3. Update MX and CNAME records with the new values:

```
UPDATE dns_records SET data='<TARGET_MAIL_SERVER_NAME>' WHERE
id in (<MX_ID>, <CNAME_ID>);
```

where <MX_ID> and <CNAME_ID> are the record IDs you got on the previous step.

4. Restart Parallels H-Sphere (on page 54) to apply changes.

- 6 As the cpanel user (on page 65), update your DNS settings using the DNS Creator utility:

```
java psoft.hsphere.tools.DNSCreator -m db -dz -z <DOMAIN_NAME>
```

where <DOMAIN_NAME> is the domain name you are updating MX and CNAME for.

Calculating Mail Traffic

This document explains how Parallels H-Sphere collects and rotates mail traffic.

Parallels H-Sphere cron script (on page 33) responsible for analyzing mail traffic is `/hsphere/shared/scripts/cron/mail_anlz.sh`. The script runs daily, processes the qmail traffic log file (on page 33) and collects mail statistics into the specially formatted `dd.mm.YYYY.qml.txt` log files in the Parallels H-Sphere statistics directory `/hsphere/local/var/statistic`. Here, `dd.mm.YYYY` is current date timestamp.

`dd.mm.YYYY.qml.txt` log files contain lines of the following format:

```
|name|xFer(kB)|Hits_All|Hits_HTML|
```

where `name` is the domain name, `xFer` is the total traffic in kilobytes.

Then, Parallels H-Sphere TrafficLoader utility is launched by cron to collect mail traffic from the statistics directory and to store it into the system database. TrafficLoader also calls the `/hsphere/shared/scripts/xfer_cat.pl` script to move the already loaded mail statistics files to the `/hsphere/local/var/statistic/loaded` directory as `dd.mm.YYYY.qml.txt.gz` archives.

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Mail Traffic Log

qmail writes a detailed mail traffic log to the `/var/hsphere/mail/logs/stats` file. To view detailed descriptive mail statistics from this file, run:

```
/var/qmail/bin/mailstatistics -v -f /var/hsphere/mail/logs/stats
```

The `-v` option provides a verbose mode.

Log records in the file have the following format:

```
date host msg type[pid]:
timestamp|sender|recipient|bytes|status|attempts
```

Here:

- *date*: date where the message is sent or received, e.g., "Jun 20 18:20:14"
- *host*: mail server host, e.g., "mail.example.com"
- *msg_type*: *in* for incoming thread, and *out* for outgoing thread
- *pid*: PID of the process

- *timestamp*: UNIX timestamp (in seconds since 1 Jan 1970) of the date when the message is sent, e.g., 1119280814
- *sender*: message sender's e-mail address
- *recipient*: message recipient's e-mail address. For multiple recipients each one a separate line in the log
- *bytes*: message size
- *status*: message status. It is different for incoming and outgoing mail

Incoming mail:

- *success* - message is received successfully
- *timeout* - no response from the source host while receiving the message
- *rejclam* - message is received completely but detected as infected when the proper mail resource is configured to remove virused message
- *rejspace* - message is received completely but detected as spam when: (1) the proper mail resource is configured to remove spam message or (2) when the score of the spam message exceeds the MaxScore parameter
- *manyhops* - message is looping
- *mboxoverquota* - over quota
- *badmime* - used bad mime type of the mail message

byterateoverflow - message exceeds size limit Outgoing mail:

- *success* - message is sent successfully
- *timeout* - no response from destination host while sending the message
- *partial* - malformed incoming message
- *readerr* - internal server problems

attempts: number of data transfers per one SMTP session Example:

```
tail -f /var/hsphere/mail/logs/stats
```

```
Jun 20 18:20:14 mail.example.com in[16723]:  
1119280814|test@yahoo.com|postmaster@test.com|69|success  
Jun 20 18:20:14 mail.example.com in[16723]:  
1119280814|test@yahoo.com|test@test.com|69|success
```

POP3 and IMAP Traffic

To view detailed descriptive IMAP statistics, run:

```
cat /var/hsphere/mail/logs/stats|grep -i imap
```

POP3 statistics:

```
cat /var/hsphere/mail/logs/stats|grep -i pop3
```

POP3 and IMAP traffic have the same format as Qmail traffic (on page 116), except the e-mail addresses there look like `imap@<account>` for POP3 and `pop3@<account>` for POP3.

Web Mailing List Traffic

To view detailed descriptive web mailing list statistics, run:

```
cat /var/hsphere/mail/logs/stats | grep maillist
```

Web mailing list traffic has the same format as Qmail traffic, except that in sender field it includes 'web@maillist' to identify its type.

SpamGuard Setup

➤ *To set up SpamGuard:*

- 1 Download SpamGuard: <http://www.enderunix.org/spamguard/>
- 2 Execute `tar xzf spamguard-x.x.tar.gz`
- 3 Go to `/root/inst/spamguard-x.x/`
- 4 Read the INSTALL and README files
- 5 Install SpamGuard following the instructions in the INSTALL and README files

IMPORTANT: You must put all your system domain names to the Spamguard's **ignore list** to avoid any casual chance of their appearance in the blacklist! Please follow instructions in the POST-INSTALL file.

Warning: For the time being, there is no effective way of combining mailing lists and spamguard protection. You need to configure spamguard manually by setting the maximum allowed number of recipients.

DNS Server

Parallels H-Sphere DNS service can use either MyDNS (on page 203) or the bind8.x, 9.x package. If you use the Linux RedHat autoupdates, be careful not to update bind.

To disallow user zones on a particular DNS server, disable user signup for this logical server through Parallels H-Sphere web interface. This way, old customers will keep using it, and new customers won't.

Resellers can run on dedicated and shared IPs. You can disable dedicated IP hosting for resellers. Read how to configure DNS for resellers in Parallels H-Sphere Service Administrator Guide.

Parallels H-Sphere does not provide support for Reverse DNS.

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DNS Config Files

The main configuration file location is `/etc/named.conf`

It contains the following data:

```
--
options {
    directory "/hsphere/local/var/named";
    listen-on { 127.0.0.1;
YOUR_IP_1;
YOUR_IP_2;
...
YOUR_IP_N; };
    notify-source ;
    pid-file "/hsphere/local/var/named/named.pid";
};
zone "." IN { type hint; file "local/named.ca"; };
zone "localhost" IN { type master; file "local/localhost.zone"; allow-
update
{ none; }; };
zone "0.0.127.in-addr.arpa" IN { type master; file "local/named.local";
allow-update { none; }; };
include "zones_index.conf";
acl anyip{any;};
--
```

Parallels H-Sphere DNS Zones

The main named directory both on master and slave DNS servers is
`/hsphere/local/var/named/`.

It contains the `zones_index.conf` file, the `zones_(NUMBER).conf` files and the `zones(NUMBER)` directories, where $(NUMBER) = 1, 2, \dots, 22$

This structure contains Parallels H-Sphere DNS info and files. To find a zone, execute the following commands:

```
# cd /hsphere/local/var/named/
# grep "Zone.Name.com" *.conf
```

It will return the data which contains the zone file location. But please do not modify it manually, especially, if you do not understand what you do.

The `localhost` and `0.0.127.in-addr.arpa` zones files are located in the `/hsphere/local/var/named/local/` directory.

Custom DNS Zones

If you need to add a custom zone, we recommend placing it into this directory. Note that Parallels H-Sphere won't manage your custom zones, you will have to manage them manually.

Reverse DNS

Parallels H-Sphere does not manage reverse DNS. To configure reverse DNS globally for the main Parallels H-Sphere domain, Parallels H-Sphere owner's ISP or domain registration company should accordingly configure reverse DNS for this domain on their DNS servers.

Restarting Named

➤ *To start, stop, or restart named on the Parallels H-Sphere DNS server:*

- 1 Log in as root.
- 2 Run the respective command below.

Warning: Do not use `kill -9` to stop named, as it may cause information loss!!!

Linux:

starting: `/etc/rc.d/init.d/named start`
stopping: `/etc/rc.d/init.d/named stop`
restarting: `/etc/rc.d/init.d/named restart`

FreeBSD:

For Bind 9.3 and up (on page 198):

starting: `/usr/local/etc/rc.d/named.sh start`
stopping: `/usr/local/etc/rc.d/named.sh stop`
restarting: `/usr/local/etc/rc.d/named.sh restart`

For Bind 8.x:

starting: `/usr/sbin/named -u named`
stopping: `/usr/sbin/ndc stop -u named`
restarting: `/usr/sbin/ndc restart -u named`

Warning: Without "`-u named`", the command will run under root.

Usually, a Parallels H-Sphere DNS server contains a cron DNS check which starts every 1 or 2 minutes and, if named is not started, starts it. Therefore, do not feel alarmed if you stop named and see that it keeps working for another several minutes.

Bind 9.3

This section outlines some peculiarities of Bind 9.3 in comparison with Bind 8.x.

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New Features

- Bind 9.3 is started/stopped/restarted via `hsphere-daemontools-0.76-1`, the package built on the basis of DJB daemontools (<http://cr.yip.to/daemontools.html>). This package is included into Parallels H-Sphere installation and is used with the Parallels H-Sphere mail service (on page 149) package.
- The named daemon is administered by the `rndc` utility, not by `ndc`.
- `ndc` restart is no longer supported.

Restarting Bind

Since Bind 9.3, the Daemon Tools' `svc` utility is called in the `named` daemon to stop, start and restart.

The procedure of stopping/starting/restarting `named` (on page 57) remains the same. However, you may use Bind stop/start/restart using `svc` as an alternative:

Enter the `/service` directory:

```
cd /service
```

This directory is used by daemontools and contains symlinks to standard service directories.

➤ **To stop Bind, run:**

```
/command/svc -kd named
```

➤ **To start Bind, run:**

```
/command/svc -u named
```

This sequence is equivalent to restarting `named`.

Using rndc

Bind includes a utility called `rndc` which allows you to use command line statements to administer the `named` daemon, locally, or remotely.

Managing DNS Zones

➤ *To reload a DNS zone:*

```
rndc reload <ZONE>
```

➤ *To reload all DNS zones:*

```
rndc reload
```

After that, only changed zones will be reloaded.

➤ *To suspend updates to a dynamic zone:*

```
rndc freeze <ZONE>
```

➤ *To enable updates to a frozen dynamic zone and reload it:*

```
rndc thaw <ZONE>
```

Run `rndc` for more options.

rndc Config File

```
/etc/rndc.conf
```

If `rndc` is unable to connect to `named`, check the `/etc/rndc.conf` and `/etc/named.conf`. For details on `rndc` configuration, run:

```
rndc-confgen
```

WARNING: It is strongly unrecommended to manually edit the configuration files, as it may lead to misconfiguration in dynamic zone updates! Please also read how to customize config file for DNS from Appendix C of Parallels H-Sphere Installation Guide.

Adding DNS Servers

There are two possible options to set up DNS servers:

- put each named to separate boxes
- put all DNS servers to one box

Note: The latter option requires the so-called single DNS configuration. For more details, [click here](#) (on page 201).

➤ **To add Parallels H-Sphere DNS server to a new physical box:**

- 1 Prepare the box for DNS service installation according to the instructions from Parallels H-Sphere Installation Guide.
- 2 Download and run the installation script according to the Adding Servers and Services Guide.

If you need to add a DNS server to a live Parallels H-Sphere physical server, follow the instruction on adding services.

Configuring Single DNS

Single DNS configuration enables to allocate two or more DNS servers on one physical box. In this mode, Parallels H-Sphere emulates full-featured DNS configuration where each DNS server has its own bound IP. This allows customers with a single box installation to use services, such as OpenSRS domain registration, that require at least two DNS servers.

WARNING: Single DNS mode is available only if all DNS servers are configured on one physical box! You cannot have two DNS logical servers on one box if you have another DNS server on a separate box.

To put an extra DNS server to single DNS configuration:

- 1 Add another DNS logical server to the physical server with DNS via the interface as described in Parallels H-Sphere Service Administrator Guide.
- 2 Log in as cpanel user and run the following java tools:

- ClusterPreparer:

```
su - cpanel -c "java psoft.hsinst.bboxes.ClusterPreparer"
```

- DNSCreator:

```
su - cpanel -c "java psoft.hsphere.tools.DNSCreator -m rand"
```

Read more about DNSCreator options (on page 211).

- 3 Execute:

```
/hsphere/local/config/bind/scripts/config_bind
```

- 4 Restart named service.

Installing and Configuring MyDNS

MyDNS is a DNS server for UNIX that serves records directly from an SQL database and can be used in Parallels H-Sphere as an alternative to bind (on page 196). Currently Parallels H-Sphere supports MyDNS to work only with MySQL.

Installation

➤ **To configure Parallels H-Sphere to work with MyDNS:**

- 1 Download the latest version of MyDNS from <http://mydns.bboy.net>.
- 2 Install and configure MyDNS version that is served by MySQL DB on a new or any of your existing Parallels H-Sphere servers following the MyDNS installation instructions (http://mydns.bboy.net/doc/html/mydns_2.html#SEC2). You can either install MyDNS .rpm package or compile it.

Warning: Do not rename the 'mydns' MySQL DB created during the installation.

- 3 Add the following lines into the `~cpanel/shiva/psoft_config/hsphere.properties` file:

```
MYDNS_USER = <login>
MYDNS_PASS = <password>
MYDNS_DB_HOST = <IP>
```

Where:

- **login** is the MySQL user name to access MyDNS MySQL DB with select/insert/update/delete privileges. You will need to create one more MySQL user than is described in MyDNS installation instructions and GRANT ALL privileges
 - **password** is the password for MyDNS user login
 - **IP** is the IP of the server with MySQL DB created during the installation
- 4 In the admin control panel check if *MyDNS name server* is listed as a server group. If it's not, log into the system database (on page 65) and execute:


```
INSERT INTO l_server_groups (id, type_id, name) VALUES (21, 2, 'MyDNS name server');
```
 - 5 Restart your CP (on page 54).
 - 6 If you install MyDNS on a new server, add this physical server as described in Parallels H-Sphere Service Administrator Guide.
 - 7 Add MyDNS logical server(s) via the interface with the *MyDNS name server* group and check if it is available for signup.

Uninstallation

To remove Parallels H-Sphere DNS service, remove the 'hsphere-bind' package by running:

```
rpm -e hsphere-bind-XXX
```

Note: After running this command, commands like host, dig, nslookup and others may disappear.

Therefore, it is recommended that afterwards you install additional packages: `bind-libs-XXX.rpm` and `bind-utils-XXX.rpm`.

Migrating DNS from Bind to MyDNS

➤ *To migrate DNS from BIND to MyDNS:*

- 1 Execute steps 1-3 of Installing and Configuring MyDNS (on page 203). MyDNS front end servers must be installed on the servers where you have got Parallels H-Sphere BIND name servers installed.
- 2 Restart CP (on page 54)
- 3 Log to CP server as the cpanel user (on page 65)
- 4 To transfer DNS zones and records to MyDNS, run:

```
java psoft.hsphere.tools.MigratorToMyDNS [-dz|--delete_zones]
```

If you specify `-dz` or `--delete_zones` option, then the utility will try to delete each DNS zone on the new set of DNS logical servers before recreating them.

- 5 Restart CP (on page 54).
- 6 Stop Bind.
- 7 Add external DNS server to `/etc/resolv.conf` as described in Appendix C. Customizing Configuration Files of Parallels H-Sphere Installation Guide for each MyDNS server.

Moving DNS

DNS servers can be moved only to Linux/Unix boxes. You can't move DNS to a Windows platform.

- 1 Prepare a new box with DNS using Parallels H-Sphere installer.
- 2 Using **E.Manager**, create a new physical server and add the DNS server group (or add this group to the physical server you are planing to move DNS server to).
- 3 Stop the Control Panel (on page 54).
- 4 Log into the system database (on page 65) and run the following DB queries:

```
update l_server set p_server_id=[new_p_server_id] where
id=[id_of_DNS_logical_server];
update l_server_ips set ip='[new_DNS_server_IP]',
mask='[new_DNS_server_mask]' where
l_server_id=[id_of_DNS_logical_server] and flag=4;
select * from l_server_ips where
l_server_id=[id_of_DNS_logical_server] and flag in (5,6);
```

- 5 Move all IPs selected from Parallels H-Sphere database (with flags 5 and 6) to the new server. This means that you need to remove these IPs from the network interface on the old DNS server, `/etc/named.conf` ("Listen on" directive) and `/hsphere/local/network/ips` files, and set them on new server (on network interface, `/etc/named.conf` and `/hsphere/local/network/ips` files).
- 6 Perform this step **ONLY** if you are running two DNS servers on one box and are separating them. This must be done on the source server. Go to the directory `/hsphere/shared/scripts/MultiDNS/` and copy its contents one level higher overwriting the target files:

```
# cd /hsphere/shared/scripts/MultiDNS/
# cp ./* ../
```

- 7 Move DNS data. You can choose between two possibilities: physical move or recreation of DNS zones.

- Physical move:

1. Move the `/hsphere/local/var/named` directory from old DNS server to the new server.
2. Change the ownership of moved files to `named:named`:

```
chown -R named:named /hsphere/local/var/named
```

3. On the rest of DNS servers, for slave zones which had masters set to the old DNS server IP, change it to the new DNS server IP (using SED or any other method).
4. Restart named (on page 57).

- DNS recreation tool:

1. Log into your CP server as the cpanel user (on page 65).
2. Execute the following command (it may take a while if you have many DNS zones):

```
java psoft.hsphere.tools.DNSCreator -m db -dz
```

- 8 Start the Control Panel (on page 54).
- 9 Change the IP in A DNS record for the DNS server in the service DNS zone (using the Control Panel).

Removing Broken DNS Zones

This document contains step-by-step instruction on how to remove the DNS zone if, while adding DNS zone for a domain, the following error message shows up:

Zone ... has been taken

See also the troubleshooter

(<http://hsphere.parallels.com/HSdocumentation/FAQ/troubleshooter.php>).

Note: Here, we deal with such issues where, by some reason, DNS zone was not correctly created or not completely removed from the system. We do not consider cases where this DNS zone exists on a live account.

First of all, you need to check from the CP interface if this domain zone is indeed removed. For this, choose the **Search/In resellers** menu and search for the domain name.

If no account is found, you need to remove the DNS zone from the Parallels H-Sphere database.

1 We strongly recommend you to back the database up before you make changes in it.

2 Use transactions when you modify tables. Transactions have the following format:

`begin;` - start the transaction. *[statements for modifying data: delete, insert, update, and the like]*

`rollback;` - rollback the transaction; also perform rollback when you make a syntax error in the previous statement.

`commit;` - commit the transaction.

Use either `rollback;` or `commit;` to finish the transaction.

The following tables and fields are considered in this guide:

- `dns_zones` - the list of DNS zones.
 - `dns_zones.id` - DNS zone resource identifier;
 - `dns_zones.name` - DNS zone domain name.
- `parent_child` - the tree of resources related to accounts. Account is a root resource. Certain account resources (parent resources) may have child resources.
 - `parent_child.account_id=accounts.id` - account identifier;
 - `parent_child.parent_id` - parent resource identifier;
 - `parent_child.child_id` - child resource identifier. DNS zone is a child resource to the account.
- `accounts` - the list of accounts.
 - `accounts.id` - account identifier;

- `account.deleted` - contains the date when the account has been deleted, or NULL if the account is alive;
- `users` - the list of end users.
`users.id` - user id;
`users.reseller_id=resellers.id` - id of the reseller under whom this user is created; 1 if the user has no reseller.
 - `user_account` - the table which maintains the user-account correspondence. It links the users and accounts tables.
`user_account.user_id=users.id` - user id;
`user_account.account_id=accounts.id` - account id for this user.
 - `resellers` - the list of resellers.
`resellers.id` - reseller id.
 - `e_zones` - the list of service DNS zones.
`e_zones.id=dns_zones.id` - service DNS zone id;
`e_zones.reseller_id=resellers.id` - id of the reseller who hosts this zone.

1 Check if the DNS zone is present in the database:

```
select * from dns_zones where name = 'domain.com';
```

Here, `domain.com` is the DNS zone name.

2 Find out the type of the DNS zone (user DNS zone or service DNS zone).

```
select account_id from parent_child where child_id =  
<dns_zone_id>;
```

If the query returns nothing, the DNS zone is the service DNS zone.

Otherwise, it is the user DNS zone. `parent_child.account_id` is the account under which this DNS zone is created.

In this section:

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Removing User Domain Zone

- 1 Check if the account for the DNS zone is deleted:

```
select deleted from accounts where id = <account_id>;
```

- 2 If `accounts.deleted` is not `NULL`, it means that the account has been deleted.

In this case, it is required to remove all records with this account id from the `parent_child` table:

```
begin;  
delete from parent_child where account_id = <account_id> and  
account_id <> child_id;  
commit;
```

- 3 If `account.deleted` is `NULL`, check if there is a user for this account:

```
select * from user_account where account_id = <account_id>;
```

If this query returns nothing, we have got an error: account exists, but no user corresponds to this account. In this case, you should run the `DeletedAccounts` Java utility:

1. Log into your control panel server as `cpanel` user running the following command:

```
su -l cpanel
```

2. Execute the following command:

```
java psoft.hsphere.tools.DeleteAccounts
```

Then, enter the ids of the accounts you wish to delete, or create the file with these account ids in separate lines and redirect it to the standard input of the above command:

3. Make sure you are logged as `cpanel` user.
4. Execute the following command:

```
java psoft.hsphere.tools.DeleteAccounts <  
file_with_account_ids
```

Note: `DeleteAccounts` should not be used against reseller accounts!

Removing Service Domain Zone

- 1 Find the reseller id for this DNS zone:

```
select reseller_id from e_zones where id = <dns_zone_id>;
```

- 2 Find the reseller in the `resellers` and `users` table:

```
select * from resellers where id = <reseller_id>;  
select* from users where id = <reseller_id>;
```

- 3 If the reseller is not found in any of these tables:

1. Change the reseller id to 1 in the `e_zones` table:

```
begin;  
update e_zones set reseller_id = 1 where id = <dns_zones_id>;  
commit;
```

2. Restart CP.

3. Remove the DNS zone from the CP admin interface in the **E.Manager/DNS Settings** menu.

Using DNS Creator

DNS Creator is a utility that re-creates DNS data to new DNS servers. Use this utility to republish DNS data to a different box or add an extra DNS server.

➤ **To create DNS:**

- 1 Log into your control panel server as the cpanel user (on page 65).
- 2 Run DNS Creator:

```
java psoft.hsphere.tools.DNSCreator -m creation_method [-dz]
[-z zonename]
```

-m creation method. Possible values: db or rand

- db - pick NS servers as they are defined in the Parallels H-Sphere database
- rand - pick NS servers randomly

-dz|--delete_zones - delete zones first. Add this option only if such zones already exist. With this option, DNS creation will take at least twice more time.

-lids|--logical-servers - process zones which are on the logical servers with the specified IDs.

-pip|--pServerIP - specifies a physical server by its primary IP. All necessary logical server IDs are chosen automatically. Often -pip is used as an alternative to -lids.

-z|--zone - recreate only one specified zone. Without this option, all zones will be recreated.

Note: If both lids and -z parameters are specified, the -z parameter will be ignored.

Note: If you are adding an extra DNS server, specify -m rand or else this new DNS server will be available only for new signups.

Please be patient. If you have hundreds of domains, this utility might take hours to have executed.

MySQL Server

This chapter describes some task you may need to perform on your Parallels H-Sphere MySQL server.

MySQL server log file is `/var/log/mysql`.

MySQL comes with PhpMyAdmin (<http://www.phpmyadmin.net/>) which is a MySQL administration Web interface written in PHP. It is installed as an `hsphere-phpmyadmin-<version>-<build>` package, where `<version>` is PhpMyAdmin version, and `<build>` is this package's build number.

PhpMyAdmin installation directory is
`/hsphere/shared/apache/htdocs/phpMyAdmin`.

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Installing MySQL Server

Below is the procedure of installing MySQL database software and adding MySQL server to Parallels H-Sphere cluster.

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Step 3. Installing MySQL	213
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Step 5. Adding MySQL Server to Parallels H-Sphere	214

Step 1. Checking for MySQL on Your Box

First, check whether MySQL database server is installed. You can do this by entering the following command into your command prompt:

```
which mysql
```

If it returns you a path, for example `/usr/bin/mysql`, you have MySQL database software installed. Alternatively, you can try to find an installation of MySQL by running the following command in your command prompt:

```
rpm -qa | grep -i mysql
```

If this gives you something like:

```
mysql-4.0.16-0  
mysql-client-4.0.16-0
```

you already have MySQL DBMS installed.

Step 2. Downloading MySQL

If you do not have MySQL installed, download MySQL binary RPM distribution. On the Web site www.mysql.com, go to the **Download** section, select the latest stable release, then select "The server for i386 systems" from the "Standard binary RPMs" list. Also, you will need client programs, so go back to the **Download** section and download "client programs for i386 systems" from the "Standard binary RPMs" list.

Step 3. Installing MySQL

Now that you have downloaded MySQL database software installation package, execute the following command:

```
rpm -ivh /path/to/downloaded/mysql-4.xx.xx-x.rpm
```

where `mysql-4.xx.xx-x.rpm` is MySQL binary RPM distribution filename.

Step 4. Configuring MySQL

To get MySQL working, you now need to configure the software installed.

Connection from Parallels H-Sphere to MySQL database is performed via SSH. In order to connect to MySQL database with a user name and password, put the `.my.cnf` file in the home directory of the user under which SSH connection is established. Typically, it is the `mysql` user. To find out the path to the MySQL home directory, log in as the `mysql` user under root, and then type `pwd`:

```
# su - mysql
# pwd
```

Or, finger the `mysql` user for details:

```
# finger mysql
```

In `.my.cnf`, you must insert the following lines:

```
[client]
user=login_of_some_highly_privileged_user
password=his_password
```

where `login_of_some_highly_privileged_user` is the login name of MySQL database user which have insert, update, delete, select, privileges on MySQL system database (those called `mysql`). `his_password` is the plain text password of this user.

WARNING: For security reasons, you MUST set access type for `.my.cnf` file to 0400 or 0600.

Step 5. Adding MySQL Server to Parallels H-Sphere

After you have installed and configured MySQL software on a new box, add MySQL server to Parallels H-Sphere cluster as described in Adding Servers and Services Guide. If MySQL is installed on a live Parallels H-Sphere box, add MySQL as a new Parallels H-Sphere service.

Backing Up MySQL Database

To back up MySQL database, back up the MySQL home directory, or use the `mysqldump` utility to dump the database. Type `'man mysql'`, `'man mysqldump'` or see MySQL documentation (<http://www.mysql.com/documentation/>) for details.

Running Parallels H-Sphere MySQL Scripts

On the MySQL database box the following scripts are installed in `/hsphere/shared/scripts`:

```
mysql-change-user-password - changes user password
mysql-change-user-password.sh - changes user password
mysql-db-size - calculates database size
mysql-db-size.pl - calculates database size
mysql-drop-database - drops database
mysql-drop-database.sh - drops database
mysql-resume-user - resumes suspended user
mysql-resume-user.sh - resumes suspended user
mysql-create-db - creates database
mysql-create-db.sh - creates database
mysql-db-users - lists MySQL database users who have any privilege on this
database
mysql-db-users.sh - lists MySQL database users who have any privilege on this
database
mysql-get-login.pl - gets superuser login and password
mysql-get-login.pl.sh - gets superuser login and password
mysql-revoke-all - revokes all user privileges on database
mysql-revoke-all.sh - revokes all user privileges on database
mysql-create-user - creates MySQL user
mysql-create-user.sh - creates MySQL user
mysql-delete-user - deletes MySQL user
mysql-delete-user.sh - deletes MySQL user
mysql-grant-priv - grants given privilege on given database to given user
mysql-grant-priv.sh - grants given privilege on given database to given user
mysql-suspend-user - suspends MySQL user
mysql-suspend-user.sh - suspends MySQL user
```

All scripts accept some command line parameters. All scripts consist of two parts. The first part, typically without extension, sets some necessary variables and then calls out the second part of the script under `sudo`.

INFO: `fix_perm.sh` scripts sets the needed owner and rights to mysql scripts.

WARNING: Some of these scripts are different on the FreeBSD systems, so copy the corresponding script versions from `/hsphere/shared/scripts/FreeBSD`.

Getting Remote Access to MySQL Logical Server

By default, MySQL client connects to MySQL server on localhost (127.0.0.1). It is possible to configure MySQL client to use the `-h` option to connect to the MySQL server remotely by the logical server IP:

```
mysql -h <mysql_logical_server_ip>
```

This feature is, in particular, required in some custom MySQL configurations where one MySQL client (bound to the physical server IP) connects to several MySQL servers on different boxes (bound to the logical server IPs).

➤ *To enable or disable remote access to particular MySQL logical servers in the Control Panel:*

- 1 Go to the admin Control Panel, **E.Manager** menu, **L.Server**.
- 2 Choose a MySQL logical server from the list of logical servers.
- 3 Under **Additional Options**, check or uncheck the option **Remote Access To MySQL Server** and press **Set**:

Additional options	
Remote Access To MySQL Server	<input type="checkbox"/> Set

- 4 Confirm your choice on the page that appears.

WARNING: 1) Remote access to MySQL server is currently incompatible with Parallels H-Sphere mail system! You **must not** enable remote MySQL access on physical servers with live mail!

2) You **must not** change logical server IP on or add another server IP to MySQL logical server where remote access is enabled to!

Enabling Linked Tables in phpMyAdmin

Newer versions of phpMyAdmin give the following error if not configured accordingly:

```
"Error
The additional features for working with linked tables have been
deactivated."
```

These features include bookmarks, comments, SQL-history, PDF generation, field contents transformation, etc.

➤ **To enable new phpMyAdmin features:**

- 1 Log into the web server as root. This must be the web server where phpMyAdmin is installed. The ID of this logical server is specified in `/hsphere/local/home/cpanel/shiva/psoft_config/hsphere.properties` on the CP server.

- 2 Create `phpmyadmin` database. If you are running Web and MySQL servers on the same box:

```
mysql -u root -p<password> <
/hsphere/shared/apache/htdocs/phpMyAdmin/scripts/create_tables
.sql
```

If they are on different boxes:

```
mysql -h <MYSQL_SERVER_IP> -u root -p<PASSWORD> <
/hsphere/shared/apache/htdocs/phpMyAdmin/scripts/create_tables
.sql
```

- 3 Give necessary permissions to the controluser.

If you are running Web and MySQL servers on different boxes, first log into the MySQL server as root.

```
mysql# GRANT SELECT, INSERT, UPDATE, DELETE ON phpmyadmin.* TO
'phpuser'@'%';
```

- 4 Enter the following values in the file `/hsphere/shared/apache/htdocs/phpMyAdmin/config.inc.php` on the web server:

```
$cfgServers[1]['pmadb'] = 'phpmyadmin';
$cfgServers[1]['table_info'] = 'pma_table_info';
$cfgServers[1]['pdf_pages'] = 'pma_pdf_pages';
$cfgServers[1]['history'] = 'pma_history';
$cfgServers[1]['column_info'] = 'pma_column_info';
$cfgServers[1]['table_coords'] = 'pma_table_coords';
$cfgServers[1]['relation'] = 'pma_relation';
$cfgServers[1]['bookmarktable'] = 'pma_bookmark';
```

Changing MySQL Root Password

This document explains how to change the root user password in MySQL access privilege database.

In this section:

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Option 1

- 1 Login as root to the box with the MySQL server.
- 2 Stop MySQL server (on page 56).
- 3 Open the mysql server startup script. This is the file you have just executed to stop MySQL server.
- 4 Find the line that contains the `mysqld_safe` command and add `--skip-grant-tables` as its parameter.
- 5 Start MySQL server (on page 56).
- 6 Login as the mysql user and connect to the mysql user/permission database and run the update queries:

```
# mysql -u root mysql
mysql> UPDATE user SET Password=PASSWORD('newrootpassword')
WHERE User='root';
mysql> FLUSH PRIVILEGES;
```

replacing `newrootpassword` with the new root password to the box with the MySQL server.

- 7 Exit mysql database by typing `\q`.
- 8 Exit mysql user console by typing `exit`.
- 9 Stop MySQL server (on page 56).
- 10 Open the mysql server startup script and remove the `--skip-grant-tables` parameter you added above.
- 11 Start MySQL server (on page 56).
- 12 Open the file `~mysql/.my.cnf` and update the password in the corresponding line.

Option 2

- 1 Stop the MySQL daemon:

```
kill `pidof mysqld`  
ps auxw | grep mysql
```

- 2 Temporarily create a text file in the following location:

```
/hsphere/local/config/mysql/file_name
```

This file must contain a string with an sql command similar to this one:

```
SET PASSWORD FOR 'root'@'localhost' =  
PASSWORD('your_new_mysql_password');
```

- 3 Manually start mysql with a special option:

```
mysqld_safe --init-file=/hsphere/local/config/mysql/file_name  
&
```

- 4 Check whether the new password is working:

```
mysql -p
```

If everything is fine, you'll get a screen like this:

```
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 2 to server version: 5.0.27-  
standard-log  
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.
```

- 5 Kill mysql:

```
kill `pidof mysqld`
```

- 6 Remove the temporary file:

```
rm -f /hsphere/local/config/mysql/file_name
```

- 7 Start MySQL server (on page 56).

- 8 Open the file `~mysql/.my.cnf` and update the password in the corresponding line.

This option 2 is simpler, faster and more secure than the first one as there is neither editing the script `rc.d/mysqld` startup nor using the command `--skip-grant-tables`.

Moving MySQL

This section explains how to move MySQL service between boxes of an Parallels H-Sphere cluster.

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Step 1. Preparing Servers

- 1 Update your Parallels H-Sphere to the latest version.
- 2 Apply the latest MySQL update, if any, after the installation of your Parallels H-Sphere.
- 3 Prepare a new box with MySQL (on page 212) using Parallels H-Sphere installer.
- 4 In **E.Manager**, disable signup for the MySQL server.

Step 2. Moving MySQL Content

- 1 Log into the target box as root:
- 2 Stop MySQL service (on page 56).
- 3 Move the mysql/ directory from the source server:

```
rsync -arzgop -e ssh root@<SOURCE_MYSQL_SERVER_IP>:~mysql/  
~mysql/
```

- 4 Start MySQL service (on page 56).

Step 3. Updating System Database

- 1 Stop the Control Panel (on page 54).

- 2 Log into the Parallels H-Sphere system database (on page 65) and run the following queries:

```
update l_server set p_server_id=<TARGET_PHYSICAL_SERVER_ID>
where id=<MYSQL_LOGICAL_SERVER_ID>;
(1 record)
update l_server_ips set ip='<TARGET_MYSQL_SERVER_IP>',
mask='<TARGET_MYSQL_SERVER_MASK>' where
l_server_id=<MYSQL_LOGICAL_SERVER_ID> and flag=4;
(1 record)
```

- 3 Start the Control Panel (on page 54).

Step 4. Updating Resellers' Server Aliases

As the cpanel user, run ServerAliasRenamer:

```
java psoft.hsphere.tools.ServerAliasesRenamer --lserver
<MYSQL_LOGICAL_SERVER_ID>
```

Step 5. Synchronizing MySQL Content

- 1 Stop MySQL service on the source box.
- 2 Repeat all of Step 2 above.
- 3 If the source box has a mail service, log in there and start MySQL service.

Step 6. Finalizing the Migration

- 1 Go to **E.Manager** -> **DNS Manager** and choose to edit the main service DNS zone. Change the IP in the A DNS record for the MySQL server.
- 2 Open the file `conifig.inc.php` in the PhpMyAdmin directory. Change the IP of MySQL server in `$cfgServers[$i]['host']`. `$i` is the number of the MySQL server in PhpMyAdmin configuration:

```
$i=1,2,..
```

- 3 Check if any of the customer scripts use the MySQL server IP and update all instances.
- 4 Install (<http://www.quietsche-entchen.de/download/tcpproxy-2.0.0-beta15.tar.gz>) and configure (<http://www.quietsche-entchen.de/cgi-bin/wiki.cgi/-wiki/proxies/TcpProxy>) TCP proxy on the old server to ensure that MySQL hostname resolves to the new IP address during the propagation period.

Step 7. Checking Functionality

Now that you have finished the migration, visit a few user websites that use MySQL and verify that everything works smoothly.

Moving MySQL Accounts

WARNING: The undermentioned procedure is recommended for experienced Parallels H-Sphere owners only!

All MySQL resources of the particular Parallels H-Sphere account are called MySQL account hereinafter. The following steps explain how to move all databases of a particular Parallels H-Sphere account to a new logical MySQL server and apply changes to the Parallels H-Sphere database.

➤ **To move MySQL account:**

- 1 Log into the source MySQL server and get MySQL root password that will be generated after entering the following command:

```
# cat ~mysql/.my.cnf
```

- 2 Export user account databases on source MySQL server with the help of mysqldump utility:

```
# mysqldump -Q -uroot -p DBNAME > DBNAME.sql
```

where `DBNAME` is the database name.

This should be applied to every user database within the account.

- 3 Dump user database privileges on source MySQL server:

```
# mysqldump -c -e -Q -t mysql -uroot -p db -w "db like 'USERNAME_%" > USERNAME_mysql.db.sql
```

where `USERNAME` is an Parallels H-Sphere user prefix for database.

- 4 Log into CP server. Change MySQL logical server id for the account:

```
# su - cpanel
# java -Xms64M -Xmx256M psoft.hsphere.tools.ChangeLServerId -a ACC_ID --from OLD_LID --to NEW_LID
```

where:

`ACC_ID` - the account id

`OLD_LID` - source logical mysql server ID

`NEW_LID` - target mysql logical server ID

- 5 Create empty databases on the target MySQL server:

```
# su - cpanel
# java -Xms64M -Xmx256M psoft.hsphere.tools.PhysicalCreator -rg mysql -co -lid NEW_LID -accs ACC_ID
```

- 6 Transfer all `DBNAME.sql` and `USERNAME_mysql.db.sql` files from the source server to the target MySQL server.

- 7 Log into the target MySQL server and get MySQL root password that will be generated after entering the following command:

```
# cat ~mysql/.my.cnf
```

8 Import databases:

```
# mysql -uroot -p DBNAME < DBNAME.sql
```

9 Restore user database privileges:

```
# mysql -uroot -p mysql < USERNAME_mysql.db.sql  
# mysqladmin reload -p
```

10 Restart Parallels H-Sphere CP (on page 54).**11** Make sure to check MySQL dbs functionality on the target server. If it is ok, you may delete MySQL databases from the source server by running the following commands:

```
/hsphere/shared/scripts/mysql-drop-database DBNAME  
/hsphere/shared/scripts/mysql-delete-user USERNAME
```

Perform steps 2,3,8,9,11 for each MySQL db and user of the current Parallels H-Sphere account on the source MySQL server.

PostgreSQL Server

This chapter describes some task you may need to perform on your Parallels H-Sphere PostgreSQL server.

PostgreSQL log file is `/var/log/pgsql`.

PostgreSQL server comes with PhpPgAdmin (<http://phpPgAdmin.sourceforge.net/>) which is a PostgreSQL administration Web interface written in PHP. It is installed with PostgreSQL server as a `hsphere-phpPgAdmin-<version>-<build>` package, where `<version>` is PhpPgAdmin version, and `<build>` is this package's build number.

IPhpPgAdmin installation directory is
`/hsphere/shared/apache/htdocs/phpPgAdmin`.

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Installing PostgreSQL Server

Below is the procedure of installing PostgreSQL database software and adding PostgreSQL server to Parallels H-Sphere cluster.

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Step 1. Checking for PostgreSQL

First, check if you have PostgreSQL database server already installed. You may do this by entering the following command into your command prompt:

```
which psql
```

If you get the following (or similar):

```
/usr/local/pgsql/bin/psql
```

this means you have already got PostgreSQL database software installed.

Using the `rpm -q` command (on RedHat servers) is an alternative way to check if PostgreSQL is installed. Type the following command in your command prompt:

```
rpm -qa | grep postgresql
```

If you get

```
postgresql-7.3.4-x
```

or something alike when the command is executed, it will mean that you already have PostgreSQL database software installed.

Now you may use the existing one or install a later version of PostgreSQL.

Step 2. Downloading PostgreSQL

Note: skip this step if PostgreSQL has been already installed.

If you don't have PostgreSQL installed, you will need to download PostgreSQL from binary RPM distribution from www.postgresql.org or its mirror sites.

Find RPM file which is usually stored in the `software/download` directory and download it.

Step 3. Installing PostgreSQL

Install the PostgreSQL database software. Do this by the following command:

On RedHat servers:

```
rpm -i postgresql_rpm_file_name
```

where `postgresql_rpm_file_name` is PostgreSQL binary RPM distribution.

On FreeBSD servers:

```
pkg_add postgresql_pkg_file_name
```

where `postgresql_pkg_file_name` is PostgreSQL package for FreeBSD.

Step 4. Configuring PostgreSQL

1. Prior to configuration, you need to start PostgreSQL for the first time to initialize the PostgreSQL service database and to create the necessary files and directories.

On RedHat servers, PostgreSQL service is initialized automatically on the first PostgreSQL start:

```
/etc/rc.d/init.d/postgresql start
```

On FreeBSD servers, you need to initialize it manually before you start PostgreSQL:

```
su - pgsql -c initdb  
/usr/local/etc/rc.d/010.pgsql.sh start
```

2. To configure the access to PostgreSQL DBs, go to PostgreSQL home directory. It is usually `/usr/local/pgsql`. To find out what is the path to PostgreSQL home directory, login as `postgres` user under root and type `pwd`:

```
# su - postgres  
# pwd
```

or, finger `postgres` to get info about the `postgres` user:

```
# finger postgres
```

In this directory, find the `data/pg_hba.conf` file. Open it and find the records similar to the ones below:

TYPE	DATABASE	USER	IP_ADDRESS	MASK	AUTHTYPE	MAP
local	all	all			trust	
host	all	all	127.0.0.1	255.255.255.255	password	
host	all	all	0.0.0.0	0.0.0.0	password	

If the 'AUTHTYPE' parameter is set to `trust`, you must change the authentication option to `password`.

* For more detailed configuration, see `pg_hba.conf` file.

Warning: If during the update process you get the message:

```
WARNING: pg_hba.conf must be configured more strictly.
```

it means that `pg_hba.conf` for a given Postgres database should be configured to restrict IP access to Postgres databases from outside the Parallels H-Sphere cluster. It is especially important to ensure that IP access to the Parallels H-Sphere system database is provided only from CP.

See also: Setting password for the PostgreSQL user (on page 229) (`postgres` on RedHat, `pgsql` on FreeBSD).

Backing Up PostgreSQL Database

Back up the PostgreSQL home directory or make the database export by the means of PostgreSQL. Type `'man psql'` or see Postgres documentation (<http://www.postgresql.org/docs/>) for details.

Using VACUUM Utility

The Postgres `VACUUM` command enables to clean up the server transactions.

Enter the `psql` server:

```
# psql database_name [user_name]
```

In the `psql` command line, type the `'vacuum full'` command:

```
vacuum full;
```

Or, write a shell script performing this procedure and add it to cron jobs on the PostgreSQL server to be launched regularly.

Note: `vacuum` is a time-consuming procedure; it may take up to several hours to complete!

Running PostgreSQL Scripts

On the PostgreSQL database box in the `/hsphere/shared/scripts` directory, the following scripts are installed:

`pgsql-change-user-password` - changes user password

`pgsql-change-user-password.sh` - changes user password

`pgsql-create-db` - creates PostgreSQL database

`pgsql-create-db.sh` - creates PostgreSQL database

`pgsql-create-user` - creates PostgreSQL user

`pgsql-create-user.sh` - creates PostgreSQL user

`pgsql-db-size` - calculates database size

`pgsql-db-size.pl` - calculates database size

`pgsql-delete-user` - deletes PostgreSQL user

`pgsql-delete-user.sh` - deletes PostgreSQL user

`pgsql-drop-database` - drops PostgreSQL database

`pgsql-drop-database.sh` - drops PostgreSQL database

`pgsql-get-login` - gets PostgreSQL superuser login and password

`pgsql-get-login.pl` - gets PostgreSQL superuser login and password

`pgsql-resume-user` - resumes the suspended user

`pgsql-resume-user.sh` - resumes the suspended user

`pgsql-setenv` - sets PostgreSQL environment variables

`pgsql-suspend-user` - suspends PostgreSQL user

`pgsql-suspend-user.sh` - suspends PostgreSQL user

All scripts accept some command line parameters. All scripts consist of two parts. The first part, typically without extension, sets necessary variables and then calls the second part of the script under `sudo`.

INFO: `fix_perm.sh` scripts sets needed owner and rights to Postgres scripts.

WARNING: Some of these scripts are different on FreeBSD systems, so copy corresponding versions of scripts from `/hsphere/shared/scripts/FreeBSD`.

Changing Postgres User Password

Changing the password for the `postgres` user (`pgsql` in FreeBSD) differs depending on the version of PostgreSQL installed. To check the version, type under root:

```
# psql --version
```

PostgreSQL 7.4.7 is used in the latest versions of Parallels H-Sphere for both the Parallels H-Sphere system database (on page 63) and user databases (on page 224).

The `postgres/pgsql` password is changed in the PostgreSQL service database. This is a more secure way than having the passwords stored in a file.

1 Run under root:

In RedHat:

```
psql -d template1 -U postgres (enter the template1 service database)
alter user postgres with password 'postgres_password'; (run
query to change the password)
```

In FreeBSD:

```
psql -d template1 -U pgsql
alter user pgsql with password 'pgsql_password';
```

2 Restart Postgres (on page 55) to apply changes.

Localizing PostgreSQL

➤ *To set up a custom language support when entering data into PostgreSQL:*

1 Recompile PostgreSQL using the following keys:

```
--enable-locale (enable locale support)
--enable-recode (enable Cyrillic recode support)
--with-mb=WIN (enable multi-byte support, e.g. WIN)
```

2 Create Parallels H-Sphere database supporting the new encoding (e.g. WIN).

NOTE: if the browser encoding does not agree with the database encoding, it is impossible to guarantee a correct record in the database.

In the `~cpanel/shiva/psoft_config/hsphere.properties` configuration file, replace

```
DB_URL = jdbc:postgresql://127.0.0.1/hsphere
```

with

```
DB_URL =
jdbc:postgresql://127.0.0.1/hsphere?charSet=<YOUR_LANGUAGE_ENCODING>
```

For instance, Russian language support takes the following line:

```
DB_URL = jdbc:postgresql://127.0.0.1/hsphere?charSet=WIN
```

Configuring Parallels H-Sphere to Use Non-Default MySQL/PostgreSQL Versions

You can use versions of MySQL/PostgreSQL other than those included into Parallels H-Sphere updater. For instance, when updating to Parallels H-Sphere 3.0 with MySQL 5.0.x and Postgres 7.4.x there may be a necessity to use MySQL 4.1.x included into Parallels H-Sphere 2.5.0 or Postgres 8.0.x enabled for a certain operational system. In such a situation Parallels H-Sphere updater allows excluding default versions of MySQL/PostgreSQL, as well as updating and configuring them by means of native system package managers.

➤ *To make sure CP properly works with such custom MySQL/PostgreSQL versions:*

1 Exclude MySQL/PostgreSQL from Parallels H-Sphere 3.0+ updater

To exclude the above mentioned packages, run one of the following updater commands:

```
exclude-mysql=show|add|del
exclude-postgresql=show|add|del
```

If custom MySQL/PostgreSQL has to be set not for all MySQL/PostgreSQL logical servers, set a list of specific IPs. To do this, refer to the section on Parallels H-Sphere Update Package of the Update Guide.

- 2 Configure MySQL/PostgreSQL to support non-default MySQL/PostgreSQL versions

➤ *To add an Parallels H-Sphere configuration to MySQL and PostgreSQL services:*

For MySQL:

- 1 Create `~mysql/.my.cnf` file which contains:

```
cat ~mysql/.my.cnf
[client]
user=root
password=PASSWORD
```

- 2 Set necessary file permissions:

```
chmod 0400 ~mysql/.my.cnf
chown mysql:mysql ~mysql/.my.cnf
```

- 3 Configure `/etc/my.cnf` file (if any) according to your needs

For PostgreSQL:

- 1 Create `pgsql` (FreeBSD) or `postgres` (Linux) database user, hereafter `PGUSER`
- 2 If you customize CP PostgreSQL, create `wwwuser`, i.e. Parallels H-Sphere main PostgreSQL database user
- 3 According to `PGDATADIR` variable (from startup file), create:

```
$PGDATADIR /global/pg_ps
```

and add a string in the following format:

```
user password
```

- 4 Set permissions:

```
chown $PGUSER:$PGUSER $PGDATADIR /global/pg_ps
chmod 600 $PGDATADIR /global/pg_ps
```

- 5 Configure `~$PGDATADIR/pg_hba.conf` by setting the list of subnets and providing *password* type for validation
- 6 If you customize a CP PostgreSQL, make sure you have correctly set a `wwwuser` access password to a database. You can check in the `~cpanel/shiva/psoft_config/hsphere.properties` file
- 7 Provide a PostgreSQL logs rotation according to syslog facility specified in `~$PGDATADIR/postgresql.conf` configuration file.

Note: to check that MySQL/PgSQL is properly configured, run the following script:

```
/hsphere/pkg/scripts/uprocedure/dbs_check
```

Choosing Remote Web Logical Servers for phpMyAdmin/phpPgAdmin Frontends

Parallels H-Sphere logical web server is by default installed on a physical box together with PostgreSQL/MySQL logical servers, thus phpMyAdmin and phpPgAdmin frontends use Apache on the same server.

It is possible to choose an alternative remote Web logical server for phpMyAdmin and phpPgAdmin. Now you can configure one phpMyAdmin/phpPgAdmin frontend to manage multiple database servers.

➤ **To choose remote Web servers for phpMyAdmin:**

- 1 Login as cpanel user (on page 65) and set the following property in `~cpanel/shiva/psoft_config/hsphere.properties`:

```
EXTERNAL_SERVICE_USAGE = TRUE
```

Then, restart Parallels H-Sphere (on page 54) to apply changes.

Important: If `EXTERNAL_SERVICE_USAGE` is not set or is not `TRUE`, you will not be able to choose an external Web server for phpMyAdmin!

- 2 In admin CP, go to **E.Manager -> Servers -> L.Servers**, proceed to settings for this MySQL logical server, and Choose Unix Hosting server for phpMyAdmin under Additional Options.
- 3 Login to CP server as root, download and run the Parallels H-Sphere 3.0 RC 4+ updater with the `hspackages reconfig` option:

```
hspackages reconfig=frontend
```

Note: Regular Parallels H-Sphere update to 3.0 RC 4 and up automatically includes the `reconfig` option. However, for best performance we recommend running Parallels H-Sphere updater with this option separately.

- 4 To move phpMyAdmin content to respective remote Web logical server location, run the following script on the source box:

```
/hsphere/pkg/scripts/uprocedures/dbs_content -h
```

Usage: `dbs_content [-h] -d dbtype [-i ip] [-p password]`

dbtype: horde or spamassassin or phpmyadmin

ip: this option is required only in the case, if redefinition took place from current external MySQL server to another one or MySQL service, located on the corresponding mail logical server.

password: this option is required only in the case, if redefinition took place from current external MySQL server to MySQL service, located on the corresponding mail logical server.

➤ **To choose remote Web servers for phpPgAdmin:**

- 1 Login as cpanel user (on page 65) and set the following property in `~cpanel/shiva/psoft_config/hisphere.properties`:

```
EXTERNAL_SERVICE_USAGE = TRUE
```

Then, restart Parallels H-Sphere (on page 54) to apply changes.

Important: If `EXTERNAL_SERVICE_USAGE` is not set or is not `TRUE`, you won't be able to choose an external Web server for phpPgAdmin!

- 2 In admin CP, go to **E.Manager** -> **Servers** -> **L.Servers**, proceed to settings for this PostgreSQL logical server, and Choose Unix Hosting server for phpPgAdmin under Additional Options.

Note: For security reasons, it is not possible to choose Web logical server on the CP box for phpPgAdmin.

- 3 Login to CP server as root, download and run the Parallels H-Sphere 3.0 RC 4+ updater with the `hspackages reconfig` option:

```
hspackages reconfig=frontend
```

Note: Regular Parallels H-Sphere update to 3.0 RC 4 and up automatically includes the `reconfig` option. However, for best performance we recommend running Parallels H-Sphere updater with this option separately.

Downgrading Postgres

Parallels H-Sphere works correctly only with Postgres 7.x. Thus, if you have accidentally upgraded Postgres package on your CP server to version 8.x and higher, you need to perform its downgrade to the version you had.

➤ To downgrade Postgres:

- 1 Log into the control panel server as root.
- 2 Back up CP postgres home dir.
- 3 Back up the file `/etc/init.d/postgresql`.
- 4 Stop the control panel. (on page 54)
- 5 Stop Postgres:

```
/etc/rc.d/init.d/postgresql stop
```

- 6 Check what postgres packages are installed:

```
rpm -qa | grep -i postgres
```

- 7 Uninstall postgres:

```
rpm -e --nodeps `rpm -qa | grep -i postgres`
```

- 8 Install an earlier version of postgres packages. The installations are available on your CP server in the directory

```
/hsphere/install/pkg/<CP_OS>/
```

- 9 Start Postgres:

```
/etc/rc.d/init.d/postgresql start
```

10 Start the control panel. (on page 54)

Windows Servers

This chapter is dedicated to Parallels H-Sphere Windows hosting server configuration.

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MSI Packages

Parallels H-Sphere Winbox installation and update is performed from MSI packages each responsible for a particular functionality:

- `HsCore` - core of Parallels H-Sphere Winbox service
- `HsInstaller` - Parallels H-Sphere Winbox installer
- `HsGeneralHosting` - provides FTP hosting services
- `HsMSSQL` - Parallels H-Sphere MSSQL hosting server (requires MSSQL server installed on the box)
- `HsRSync` - RSync utility
- `HsWeb` - provides Parallels H-Sphere Web resources for Windows hosting
- `HsAspNetSqlEMan` - supports ASP.NET Enterprise manager
- `HsSharePoint` - SharePoint hosting (requires SharePoint installed)
- `HsColdFusion` - ColdFusion hosting (requires ColdFusion installed)
- `HsWebalizer` - Webalizer
- `HsUrchin` - integrates the Google Analytics tool (requires Urchin installed)
- `HsMiva` - integrates Miva tool (requires Miva installed)
- `HsPerl` - Perl
- `HsAWStats` - AWStats
- `HsStats` - Winbox statistics resource
- `HsPHP` - PHP hosting, includes both PHP 4 and 5 version
- `HsWebShell` - WebShell Web File Manager
- `HsOsCommerce` - OsCommerce
- `HsPhpBB` - PhpBB
- `HsEasyAppSvc` - provides EasyApp service to enable installation of EasyApp collection

Each package filename has the following notation:

```
<PACKAGE_TITLE>_<HS_VERSION>.<BUILD>.<TIMESTAMP>.msi
```

where:

- **<PACKAGE_TITLE>** is the name of the package (see the list above)
- **<HS_VERSION>** is Parallels H-Sphere version
- **<BUILD>** is the package build
- **<TIMESTAMP>** is the package build timestamp (days from 1 Jan 2000)

Example: `HsGeneralHosting_3.2.152.3195.msi`.

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Download and Installation

Parallels H-Sphere MSI packages are downloaded from the <http://download.hsphere.parallels.com/shiv/HS/WINDOWS/> location.

There can be several cases of installing these packages:

- *Automatic*

The first step is downloading and running the `HsCore` package. Installation/update of the rest of the packages is managed from the admin CP by means of the Update Wizard. The wizard runs them from the `<HS_HOME>\data\services\installer` folder, where `<HS_HOME>` is Parallels H-Sphere home location (C:\Program Files\HSphere by default)

In case of upgrade from H-Sphere 2.5/3.0:

1. Older H-Sphere home folder will be forcefully moved to C:\Program Files\HSphere.
2. Older PHP packages will be replaced by HsPHP.
3. Older EasyApp collection will be built into a separate MSI package and installed into the H-Sphere Winbox framework.

- *Installation of the Bundles*

Download and run the Windows server installation bundles in accordance with the hosting type:

- **Windows Web hosting:** `HS_WinHosting_Bundle<HS_VERSION>.exe`
- **MS SQL hosting:** `HS_MSSQL_Bundle_<HS_VERSION>.exe`
- **Windows Web + MS SQL hosting:**
`HS_WinHosting_MSSQL_Bundle_<HS_VERSION>.exe`

- *Manual*

Not recommended! You can also manually install/update Parallels H-Sphere Winbox by downloading these packages and running them one by one, according to their dependencies.

Packages Requiring Third-party Software

HsMSSQL, HsSharePoint, HsColdFusion, HsUrchin and HsMiva integrate third-party products into Parallels H-Sphere environment and require respective software installed. Please refer to separate documents for specific guidelines on their configuring:

- SharePoint (on page 247)
- ColdFusion (on page 257)
- Miva (on page 458)
- Urchin (on page 463)

Dependencies Tree

Parallels H-Sphere Update Wizard installs the packages in the following sequence:

```
HsCore
|-- HsInstaller
|-- HsMSSQL
|-- HsGeneralHosting
    |-- HsRsync
    |-- HsWeb
        |-- HsAspNetSqlEMan
        |-- HsSharePoint
        |-- HsColdFusion
        |-- HsIpMigrator
        |-- HsWebalizer
        |-- HsUrchin
        |-- HsMiva
        |-- HsPerl -- HsAWStats -- HsStats
        |
        |--HsPHP
            |-- HsWebShell
            |-- HsOsCommerce
            |-- HsPhpBB
            |-- HsEasyAppSvc
```

Winbox Directory Structure

Parallels H-Sphere Winbox installation creates three major directories:

- HSphere
- HShome
- HSlogfiles

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HSphere

HSphere directory includes the following system files:

- `bin` - Parallels H-Sphere binary files
- `ftproot` - new ftp root for the default FTP site;
- `logs` - Parallels H-Sphere log files that can be found in the `hmdir\logs` directory. (`hmdir` is the directory where Parallels H-Sphere is installed, e.g: `C:\HSphere`);
- `scripts` - Parallels H-Sphere asp scripts files and configuration file (`conf.inc`);
- `skeleton` - skeletons for websites and third party products;
- `stats` - service directory for stats process;
- `wawrapper` - service for wawrapper process.

Also the "cfg" virtual directory is created on the web site which was selected as an Parallels H-Sphere website during the installation. This directory points to the "scripts" physical directory.

Note: Please do not change the "cfg" directory configuration. If any anything is changed, corresponding config parameters must be updated in the `conf.inc` file, and Parallels H-Sphere service `HSSvc` must be restarted.

For proper work, Parallels H-Sphere needs several parameters listed in the Parallels H-Sphere configuration file `hmdir\scripts\conf.inc`, such as:

- NetBios machine name ("domainName" variable);
- network adapter MAC address ("addressMAC" variable);
- users' home directory ("usersHome" variable);
- HTTP and FTP logs directory ("logPath" variable);

- MSSQL server name, login, password, etc.

Note: when updating from version 2.5 or 3.0 to version 3.1 and up, the HSpheer directory is automatically created at `C:\Program Files\HSpheer`.

HShome

The location of home directory depends on the type of Winbox installation:

- *fresh installation* - Winbox directory is installed to the path specified in a corresponding Physical server profile. If it is not set there, Parallels H-Sphere Winbox installer will automatically create it on NTFS partition with the largest free space.
- *manual installation* - Winbox directory is created at the location you specify in a corresponding step of the Winbox server installation by means of bundles

HShome directory contains all user homes. Each home directory has account owner's name. A typical user home has the following directories:

```
logs
domain1.com
domain2.com
...
domainN.com
```

Each domain directory has content similar to the following:

```
cgi-bin
dir1
dir2
...
dirN
```

logs directory would have subdirectories for each domain:

```
domain1.com - (log files in exYYMMDDHH.log W3SVC format)
domain2.com - (-/-)
...
domainN.com - (-/-)
```

Note that `cgi-bin` is not a required directory in the site structure and depends on whether the `cgi` directory resource is enabled for the site. The same is true of log files for individual sites, since Parallels H-Sphere has the transfer log resource that allows users to access log files for their site(s).

HSlogfiles

HSlogfiles directory includes HTTP and FTP logs for all users. It is a common directory which is located aside from log directories in user homes. You can set a location of this directory during the Parallels H-Sphere Winbox installation. Typically, it is located in the disk root directory (**<drive>**: \hslogfiles) and has the following content structure:

```
hslogfiles
|
|-www    (HTTP logs)
|  |--- W3SVC1 - (log files for 1 site in exYYMMDDHH.log W3SVC format)
|  |--- W3SVC2 - (-//-)
|  :
|  --- W3SVCn - (-//-)
|
|-ftp    (FTP logs)
|  |--- MSFTPSVC1 - (log files for 1 site in exYYMMDDHH.log W3SVC format)
|  |--- MSFTPSVC2 - (-//-)
|  :
|  --- MSFTPSVCn - (-//-)
```

Restarting Winbox Service

To stop Parallels H-Sphere service on an Parallels H-Sphere Windows server, run in command prompt:

```
net stop hssvc
net stop hsphere
```

Here, `hssvc` is required for ASP-based Winbox services implemented in earlier versions of Parallels H-Sphere (written in C), and `hsphere` for SOAP-based Parallels H-Sphere services (written in .NET).

To start Parallels H-Sphere service on a Winbox, run:

```
net start hssvc
net start hsphere
```

Restarting IIS

To restart IIS on an Parallels H-Sphere Windows server, run in command prompt:

```
iisreset /stop  
iisreset /start
```

Or, simply:

```
iisreset /restart
```

Enabling Winbox Shared SSL

Starting with WINDOWS 2003 SP1, IIS 6.0 supports host headers in SSL bindings (<http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/596b9108-b1a7-494d-885d-f8941b07554c.mspx?mfr=true>).

Requirements: Windows 2003 with SP1 or Windows 2000 server; Parallels H-Sphere 3.0 Final

This document covers Winbox Shared SSL integration and update.

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Integrating Winbox Shared SSL

There are two different approaches to integration of Winbox Shared SSL implemented for IIS 5.0 and for IIS 6.0:

IIS 5.0

On IIS 5.0 service, shared SSL virtual hosts are still used but their purpose has been changed to act as certificate holders. IIS 5.0 uses the virtual host with enabled Shared SSL for certain IP to establish any SSL connections for this IP regardless of actual target virtual host. So, in situations when a user turns shared SSL off on some virtual host which was the first shared SSL host, the others shared SSL's on this IP become unavailable. In other words, shared SSL virtual hosts on IIS 5.0 are intended to avoid such issues.

Admin shared SSL creation:

- Post the certificate and key on the server. The name of key container is {3716B9D2-2486-446a-9281-E4D1CA03EC0A}_<wild-card domain name>
- Create shared SSL service virtual host. It has server binding formed as <IP>:80:<IP>.SharedSSL2 where IP is an IP address of this particular shared SSL. Also it has secure binding and appropriate wild-card certificate installed. The host number of such virtual host will be in the range 10000-20000.

User shared SSL creation:

- SSL with appropriate shared SSL certificate is enabled for customer's virtual host
- The following bindings are added to ServerBindings? of customer's virtual host: <IP>:80:<domain alias> and <IP>:443:<domain alias> where domain alias is a 3rd level domain alias for customer shared SSL.

IIS 6.0

Shared SSL service virtual hosts are not used anymore.

Admin shared SSL creation:

- Post certificate and key to the server. The name of key container is {3716B9D2-2486-446a-9281-E4D1CA03EC0A}_<wild-card domain name>

User shared SSL creation:

- Enable SSL with appropriate shared SSL certificate for customer's virtual host
- Set the *SecureBindings?* of customer's virtual host to <IP>:443:<domain alias> where domain alias is 3rd level domain alias for customer shared SSL.

Updating Winbox Shared SSL

If there is shared SSL hosting on the server managed, the upgrade procedure automatically migrates shared SSL to a new scheme. It detects shared SSL by existence of virtual hosts with *Parallels H-Sphere shared SSL Log plugin log plugin* and by `HKLM\SOFTWARE\Psoft\HSphere\SharedSSL\Virtual` registry key existence. Before performing migration, it makes IIS metabase backup called `sharedSSL` used to restore metabase if something goes wrong. Migration procedure makes the following changes:

IIS 5.0

Shared SSL service virtual host:

- removes SharedSSL ISAPI filter
- renames server binding from `<IP>:80:<IP>.SharedSSL` to `<IP>:80:<IP>.SharedSSL2`
- changes log plugin to standard W3SVC

removes shared SSL virtual directories User host:

- enables SSL with appropriate wild-card certificate for customer's virtual host
- adds `<IP>:80:<domain alias>` and `<IP>:443:<domain alias>` bindings to server bindings, where domain alias is a 3rd level domain alias for customer shared SSL

IIS 6.0

Shared SSL service virtual hosts are removed.

User host:

- enables SSL with appropriate wild-card certificate for customer's virtual host
- sets secure binding to `<IP>:443:<domain alias>` where "domain alias" is 3rd level domain alias for customer shared SSL

Winbox Statistics

Parallels H-Sphere Winbox has the following log plugins installed:

- 1 **Parallels H-Sphere Web Log plugin:** a standard log plugin for virtual host designed to calculate statistics info only. Besides, for a particular site it generates HTTP log files similar to W3C log format files in the site's log directory.
- 2 **Parallels H-Sphere Web Transfer Log plugin:** can work instead of the Web Log plugin. It also implements the transfer log and AWStats log generating functionality beyond the standard behavior.
- 3 **Parallels H-Sphere Shared SSL Log plugin:** used only on shared SSL sites.
- 4 **Parallels H-Sphere Guest FTP Log plugin:** installed on the default FTP host to collect FTP statistics on account basis.
- 5 **Parallels H-Sphere FTP Log plugin:** installed on each anonymous FTP site to collect FTP statistics on FTP site basis.

Please mind the restrictions common to all Parallels H-Sphere log plugins:

- 1 All log files are rotated daily and there is no way to change this rotation period.
- 2 Log format settings can't be changed for Parallels H-Sphere log plugins.

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Statistics Modules

Services.Stats.dll

Location: ... \HSphere.NET\bin\services\Services.Stats.dll

When `HSphere.exe` starts, it initializes *Service.Stats.dll*, a timer which invokes two threads daily at 00:01 AM:

- 1 rotates logs (W3SVC, W3FTP) in ... \hslogfiles\, analyzes every log file and, if a log was created more than a month ago, moves that file to the archive of log files for that month. Archives are never rotated;
- 2 collects Webalizer statistics;
- 3 collects AWstats statistics;
- 4 cleanses log files in the users home's.

Stats.exe

Location: `...\HSphere\bin\stats.exe`.

Stats.exe normally runs daily at 00:01 AM. However, if *HSphere.exe* is restarted between 00:00 AM and 06:00 AM, *Stats.exe* will start together with *Parallels H-Sphere.exe*; the next day *Stats.exe* will run at 00:01 as usual.

Stats.exe does the following:

- 1 Executes *wawrapper.exe* and *awstats_updateall.pl*;
- 2 Rotates the user's log files in the `...\home\<account_name>\log\<domain_name>` directories. All log files created more than a week ago will be deleted.

WaWrapper.exe

Location: `...\HSphere\bin\wawrapper.exe`.

WaWrapper.exe analyzes the `webalizer.current` files for each domain.

If the `webalizer.current` file is not corrupted, *WaWrapper.exe* creates a backup copy of it in the `...\HSphere\wawrapper` directory and names it by the name of the domain where the `webalizer.current` resides.

If the `webalizer.current` file is corrupted, *wawrapper.exe* deletes it and restores the backup copy from `...\HSphere\wawrapper` directory.

Then, it copies the files `hostslist.txt`, `webalizer.conf`, *Webalizer.exe* to the `temp` directory and executes *Webalizer.exe* for each group of records from the `hostslist.txt` file.

Webalizer is a third-party product installed apart of *Parallels H-Sphere*. Its target location is specified by customer during installation.

The number of records in each group is set by default to 1. You can change this value by adding the `HostsInPackage` parameter to the registry key

`HKEY_LOCAL_MACHINE\SOFTWARE\Psoft\HSphere\WaWrapper`. The `HostsInPackage` value is unsigned integer.

Wawrapper.exe monitors *Webalizer*'s read/write operations. If a period between read/write operations is greater than *timeout*, *WaWrapper* kills this *webalizer* process and all records in this group adds to the `...\Webalizer\errhostslist.txt` file.

The default timeout is 60 seconds. You can change this value by adding the *Timeout* parameter to the registry key

`HKEY_LOCAL_MACHINE\SOFTWARE\Psoft\HSphere\WaWrapper`. The *Timeout* value is unsigned integer, in seconds.

If *Webalizer.exe* returns an error code other than 0, all records in a group will be added to `errhostslist.txt`.

Important: With lots of statistics, it may take up to several days or even weeks for Webalizer.exe to process it. In such cases, some of the statistics may be lost.

Awstats_updateall.pl

Location: ... \HSphere\skeleton\AWStats\tools\awstats_updateall.pl

awstats_updateall.pl is an AWStats tool for automatic statistics processing on all domains for which the AWStats resource is turned on in CP. AWStats automatically rotates the processed records to the *awstats.log* files in domain log directories.

Module Log Files

Services.Stats.dll: ... \HSphere\log\services\stats\stats.log

Stats.exe: ... \HSphere\logs\stats*.*

WaWrapper.exe: ... \HSphere\logs\wawrapper*.*

Awstats_updateall.pl: ... \HSphere\skeleton\AWStats\common.log

Setting Up SharePoint to Use MSSQL Server

This document gives you information on how to install Microsoft Windows SharePoint Services on your Windows 2003 web servers.

According to Microsoft

(<http://www.microsoft.com/windowsserver2003/technologies/sharepoint/default.msp>), Windows SharePoint Services technology "is an integrated portfolio of collaboration and communication services designed to connect people, information, processes, and systems both within and beyond the organizational firewall. SharePoint sites provide a central repository for documents, information, and ideas, and enable users to work interactively with these items."

Currently we support Windows SharePoint Services v2 with Service Pack 2, <http://www.microsoft.com/downloads/details.aspx?FamilyID=3144b72b-b4f2-46da-b4b6-c5d7485f2b42&DisplayLang=en>.

In this section:

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Preinstallation Requirements

Before you install Microsoft Windows SharePoint Services on your Web server, make sure that you have installed the required hardware and software.

Required	Details
Important: SharePoint and MSSQL should be installed on one and same physical server.	
Server Hardware	<ul style="list-style-type: none">▪ Intel Pentium III (and later) compatible processor▪ CPU/550 MHZ 1 CPU (2 recommended)▪ 512 MB RAM
Operation System	Microsoft Windows Server 2003: <ul style="list-style-type: none">▪ Standard Edition▪ Enterprise Edition▪ Datacenter Edition
Server Software (Web application server)	<ul style="list-style-type: none">▪ NTFS file system▪ Microsoft ASP.NET▪ Internet Information Services in IIS 6.0 worker process isolation mode with the SMTP service
Server Databases*	<ul style="list-style-type: none">▪ Microsoft SQL Server 2000 Service Pack 3 or later▪ Microsoft SQL Server 2005
Browser Client	<ul style="list-style-type: none">▪ Microsoft Internet Explorer 5.01 or later▪ Microsoft Internet Explorer 5.5 or later▪ Netscape Navigator version 6.2 or later▪ Mozilla 1.4 or later

* Microsoft Windows SharePoint Services SQL Server 2000 Desktop Engine (WMSDE) is **not supported by Parallels H-Sphere**.

Installing and Configuring SharePoint

To install and configure SharePoint Services, follow the procedure below.

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Step 4. Configure Parallels H-Sphere to Use SharePoint	251

Step 1. Installing MSSQL Server

Prior to installing SharePoint, you need to install MSSQL Server. You can chose between:

- MSSQL Server 2000 (on page 311)
- MSSQL Server 2005 (on page 312)

Step 2. Selecting Authentication Mode for SQL Server

In order to allow Windows SharePoint Services to connect to your SQL Server database, it is recommended that you configure the SQL Server database to use Windows authentication.

For SQL Server 2000:

- 1 On your server computer, go to *Start -> All Programs -> Microsoft SQL Server -> Enterprise Manager*.
- 2 In *Enterprise Manager*, click the plus sign (+) next to *Microsoft SQL Servers*.
- 3 Click the plus sign (+) next to the *SQL ServerGroup*.
- 4 Right-click the *SQL Server* name, and go to *Properties*.
- 5 In the *Properties* dialog box, click the *Security* tab.
- 6 In the *Authentication* section:
 - If you want use the MSSQL Server **only for** Microsoft Windows **SharePoint Services**, select only **Windows Authentication** mode.
 - If you want use the MSSQL Server **both for** Microsoft Windows **SharePoint Services and hosting**, select **SQL Server and Windows Authentication** mode.
- 7 Click OK.

Note: If you have used a domain account that does not already have database creation rights in SQL Server, you can give the account this access using Enterprise Manager in SQL Server 2000, as a temporary solution.

For SQL Server 2005:

- 1 On your server computer, go to *Start -> All Programs -> Microsoft SQL Server 2005 -> SQL Server Management Studio*.
- 2 On the *Connect to Server* screen, select the name of the local server from the *Server name* drop-down list.
- 3 On the *Server Properties - Server name* screen, click *Security* in the *Select a page* section.
- 4 In the *Server Authentication* section:
 - If you want use the MSSQL Server **only for** Microsoft Windows **SharePoint Services**, select only **Windows Authentication** mode.
 - If you want use the MSSQL Server **both for** Microsoft Windows **SharePoint Services and hosting**, select **SQL Server and Windows Authentication** mode.
- 5 Click OK.

Note: If you have used a domain account that does not already have database creation rights in SQL Server, you can give the account this access using SQL Server Management Studio, as a temporary solution.

Step 3. Installing SharePoint

By default, when you install Windows SharePoint Services, the Setup program installs WMSDE (Microsoft Windows SharePoint Services SQL Server Desktop Engine). Parallels H-Sphere **does not support WMSDE**. To use SharePoint with SQL Server, **run Setup with the Server Farm option**. Server Farm option allows supporting a larger set of Web sites.

- 1 Download and install SharePoint:
<http://www.microsoft.com/windowsserver2003/technologies/sharepoint/default.msp>

WARNING: During SharePoint setup, you may get the error when connecting to <http://localhost:SharePointPort/>. To solve it, you should remove the string **<identity impersonate="true" />** from C:\Program Files\Common Files\Microsoft Shared\Web Server Extensions\60\template\admin\1033\web.config. Also please check the Authentication Methods for SharePoint Central Administration WebSite in IIS. And if Basic authentication is disabled, enable it.

- 2 Go to **SharePoint Central Administration:**
Start/Settings/Control Panel/Administrative Tools/SharePoint Central Administration
- 3 Configure Administrative Virtual Server in the *Server Configuration* tab:
 - Select *Use an existing application pool and chose StsAdminAppPool*
 - Go to *Security Configuration* and select *NTLM*
 - Click OK

- 4 Configure *Database Server* in the *Server Configuration* tab:
 - Select *Database Server* and enter your MSSQL Server IP or MSSQL instance
 - In *SQL Server database name* enter your SharePoint Main DB NAME
 - Set *Windows authentication*
- 5 In *Active Directory Account Creation* choose *Users already have domain accounts*. Do not create active directory accounts.
- 6 Click OK

Step 4. Configure Parallels H-Sphere to Use SharePoint

- 1 If you installed Microsoft Windows SharePoint Services after Parallels H-Sphere is updated, run the Parallels H-Sphere updater again.
- 2 Open `HSphere.config` file usually located in the
 - in the `{disk}\Hsphere.NET\bin\` directory (*for H-Sphere 3.0 branch*)
 - in the `{disk}\Program Files\HSphere\Config\` directory (*for H-Sphere 3.1 and up*)
 and make sure the correct name of your MSSQL server was set in the SharePoint resource setting during Parallels H-Sphere update.
- 3 Restart Parallels H-Sphere service:

```
net stop hsphere
net start hsphere
```

Adding ODBC Resource

This document explains how to add your own ODBC drivers to Parallels H-Sphere Winbox. Please contact us if this document doesn't work for your version of Parallels H-Sphere.

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Interface

The following scripts are used:

- `odbc-getdrivers.asp`
- `odbc-getparams.asp`
- `odbc-createdatasrc.asp`
- `odbc-updatedatasrc.asp`
- `odbc-deletedatasrc.asp`

In this section:

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<code>odbc-getparams.asp</code>	253
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<code>odbc-updatedatasrc.asp</code>	254
<code>odbc-deletedatasrc.asp</code>	254

odbc-getdrivers.asp

description: returns a list of available ODBC drivers

parameters:

none

return value:

successful - 0<*list of driver names*>

fail - error message

comments:

script returns the list of drivers that are both installed on the box and supported by Parallels H-Sphere 2.x (they are registered in ODBCIniFile).

odbc-getparams.asp

description:

returns a list of admissible attributes for this ODBC driver

both methods "GET" and "POST" are supported

parameters:

driver - driver name

return value:

successful - 0<*list of admissible driver attributes*>

fail - error message

comments:

every parameter has the following format:

<*attribute name*> | <*type*> | <*default value*> | <*description*> | [<value1[;value2[;value3...]

See below for details on this format.

odbc-createdatasrc.asp

description:

creates new data source

only "POST" method is supported

parameters:

driver-name

DSN - name of the new data source

user-name - user's account name

<*list of admissible attributes of this ODBC driver and their values*>

return value:

successful - 0

fail - error message

comments:

- 1) all attributes with empty values are ignored;
- 2) all attributes with a type path (see below) get a path to user's homedir, but the existence of this path is not verified
- 3) data source name is created according to the pattern: user-name + DSN

odbc-updatedatasrc.asp

description:

updates parameters of the existing data source

only "POST" method is supported

parameters:

driver-name

DSN - name of the new data source

user-name - user's account name

<list of admissible attributes of this ODBC driver and their values>

return value:

successful - 0

fail - error message

comments:

default values are set for attributes that have not been specified or have empty values.

all comments to data source creation are also true of data source update.

odbc-deletedatasrc.asp

description:

deletes existing data source.

both "GET" and "POST" methods are supported

parameters:

driver-name

DSN - name of the new data source.

user-name - user's account name

return value:

successful - 0

fail - error message

comments:

no comments

Configuration

To configure ODBC use a file of the below format. Full path to this file is registered in conf.inc (the "ODBCIniFile" variable). By default it is called "odbcdrv.ini" and sits in the directory with ASP scripts.

This file has a usual windows .ini file format, i.e. is broken into sections with headings enclosed in square brackets. Every section corresponds to an ODBC driver, its name being the heading of the section. The body of the section includes driver attributes in the following format:

```
<attribute name>=<type> | <default value> | <description> | [<value1[;value2[;value3...]
```

where:

- **<attribute name>** - name of the ODBC driver attribute (e.g. DBC)
- **<type>** - typically a string of the type: <typeid>_[required|optinal], where typeid is the name of the type, e.g. "string", that can be required or optional depending on the parameter. Can take the following values:
 - path_required - required path (an individual path type is required to identify relative path to userhome dir)
 - path_optional - optional path
 - string_required - required string
 - string_optional - optional string
 - string_password - password
 - integer_required - mandatory integer value
 - integer_optional - optional integer value
 - select_required - mandatory list of values
 - select_optional - optional list of values
 - trigger - radio-button switch
- **<default value>** - default value for the given attribute; a space if missing (NOT AN EMPTY STRING!)
- **<description>** - attribute description
- **<value1[;value2[;value3...]** - values for the list; must be filled only for the 'select' types. Use semicolon (;) as delimiter.

To add a new ODBC driver to the ODBCIniFile, add a new section with the heading identical to the name of the driver and the attributes that are described according to the above rules.

Note: When a user enables an ODBC resource, Parallels H-Sphere lists drivers that can be found both among those installed on the server and those in the odbcdrv.ini file. The obcdrv.ini file contains:

- [Microsoft Paradox Driver (*.db)]
- [Microsoft Access Driver (*.mdb)]
- [Microsoft Visual FoxPro Driver]
- [Microsoft dBase Driver (*.dbf)]
- [Microsoft Excel Driver (*.xls)]
- [SQL Server]
- [MySQL]
- [MySQL ODBC 3.51 Driver]
- [PostgreSQL]

Configuring ColdFusion

ColdFusion includes a server and a development toolset designed to integrate databases and Web pages. With ColdFusion Fusion, a user can enter a zip code on a Web page, and the server would query a database and present the results in the HTML form.

For extensive coverage of ColdFusion, please refer to <http://www.macromedia.com/software/>.

WARNING: We currently don't recommend updating Parallels H-Sphere to version 2.5 and up when there are 512 and more ColdFusion mappings on a Windows server (i.e., ColdFusion is turned on for more than 511 Winbox users)!

➤ **To configure ColdFusion for Parallels H-Sphere:**

- 1 Buy ColdFusion license package.
- 2 Install ColdFusion on your Windows box following the directions of the Wizard. (Parallels H-Sphere 2.5 and up supports 6.0, 6.1 and 7.0 ColdFusion versions).
- 3 Install latest Parallels H-Sphere Winbox 3.1 Beta 2 or higher.

When performing the step-by-step installation procedure, set also ColdFusion admin password via the interface after a logical win server have been added. To do this, Go to **E. Manager -> Servers - > L.Servers** and click the logical win server name. Enter the password in the **Additional options** section and click **Set**:

Password of ColdFusion administrator	<input type="text" value="1098ght73"/> + <input type="button" value="Set"/>
--------------------------------------	---

You may also install ColdFusion on a ready Parallels H-Sphere 3.1 Beta 2 and higher Winbox. For this, do the following:

- 1 Perform steps 1 and 2 described above.
- 2 Enter ColdFusion admin password via the interface.
- 3 Run Parallels H-Sphere Update Wizard.

Enabling ASP.NET 2.0

Parallels H-Sphere uses some of ASP.NET features. That's why ASP.NET should already be installed before installing or upgrading Parallels H-Sphere on a Winbox.

It is possible to switch between ASP.NET versions in user CP.

ASP.NET requires SOAP enabled.

➤ **To enable ASP.NET 2.0 hosting on your Parallels H-Sphere Winbox:**

1 Install ASP.NET Framework 2.0 according to the installation instructions.

2 In the command line type:

```
%WinDir%\Microsoft.NET\Framework\2.0\aspnet_regiis.exe -i
```

where

%WinDir% is a path to the directory where Windows is installed (usually C:\WINNT)

%version% is a version of ASP.NET (v1.0.3705 or later)

3 Reconfigure ASP.NET resource in the `HSphere.config` file (usually, `C:\HSphere.Net\bin\HSphere.config`) to use resource "aspnet2_0" instead of "aspnet1_1". For this, edit `HSphere.config` and replace the line:

```
<resource name="aspnet"
type="Psoft.HSphere.Resources.IIS.AspNet1_1"
location="Resources.IIS.ASPNET" />
```

with this line:

```
<resource name="aspnet"
type="Psoft.HSphere.Resources.IIS.AspNet2_0"
location="Resources.IIS.ASPNET" />
```

4 Restart Parallels H-Sphere Winbox service (on page 241)

5 Download ASP.NET Migration Tool from <http://download.hsphere.parallels.com/shiv/WinBox/AspNetMigr.exe>, unpack and execute this tool to reconfigure machine.config with the new version of ASP.NET.

For example, to migrate from ASP.NET 1.1 to ASP.NET 2.0, run the following command:

```
aspnetmigrate -from 1.1.4322.0 -to 2.0.50727.0
```

Moving Log Files

This document explains how to change the HSLOGFILES directory location on Winbox. This may be required, for instance, if you are replacing your HDD.

- 1 Link the new HDD to the old HSLogs location. This can be done with Sysinternals Junction (<http://www.sysinternals.com/ntw2k/source/misc.shtml#junction>) or any other utility of this kind.
- 2 Copy logs into the 'hslogfiles' directory on the new HDD.
- 3 Set new path to the 'hslogfiles' dir in
`\hsphere\scripts\conf.inc` and
`\HSphere.NET\bin\hsphere.config`.
- 4 Restart hsphere services.

Removing Old Log Files

User log files are stored for 7 days and then automatically removed.

➤ *To remove old log files manually:*

- 1 Go to the `HSphere\scripts\` directory. In the `conf.inc` file find the directory where WWW and FTP logs are stored.

```
// path to directory where websites logs are located
logWebPath = "d:\\HSlogfiles\\www"
```

```
// path to directory where ftpsites logs are located
logFtpPath = "d:\\HSlogfiles\\ftp"
```

- 2 Go to the respective directory (`cd d:\hslogfiles\www`)

Here you will find directories containing web log files for each domain
 e.g.: W3SVC1, W3SVC2, W3SVC3 and so on.

or
 directories containing ftp log files for each domain
 e.g.: MSFTP1, MSFTP2, MSFTP3 and so on.

- 3 Enter "`del /s /q <mask>`" command in the command line where `<mask>` is the mask for the files to be removed.

* You can use a wildcard in the mask.

Names of the log files have the following appearance:

`exyymmddhh.log` or just `exyymmddhh`

where

ex - the essential part of the name

yy - two-digit year value

mm - two-digit month value

dd - two-digit day value

hh - two-digit hour value

Examples of how to use the `del` command:

`del /s /q ex01*` - removes all files for the year 2001

`del /s /q ex0102*` - removes all files for February, 2001

`del /s /q ex??02*` - removes all files for February of all the years

? - Any single character

* - Zero or more characters

Moving User Homes

This document explains how to move the directory for user homes to a different location. This may be required, for instance, if you are replacing your hard drive with a bigger one.

Winbox supports only one directory for user homes, which means you can't add another directory for user homes to use alongside with the one you already have.

➤ **To change HSHOME directory:**

- 1 Add new HDD
- 2 Create new HSHOME directory
- 3 Copy all user content into the new HSHOME directory with Xcopy. For example, to copy from disk D: to disk F:, execute in the command prompt:

```
Xcopy d:\hshome f:\hshome /O/E
```

- 4 Change the path to HSHOME directory in:
 - Registry key
HKEY_LOCAL_MACHINE\SOFTWARE\Psoft\HSphere\HsServULayer\QuotaService\HomeDir
 - [disk]:\hsphere\scripts\conf.inc
 - [disk]:\hsphere.net\bin\hsphere.config
- 5 Restart all Parallels H-Sphere services
- 6 Link the new HDD to the old home dir location. This can be done with Sysinternals Junction (<http://download.hsphere.parallels.com/shiv/WinBox/linkmagic.exe>) or any other utility of this kind.
- 7 Move quota entries for all accounts using the QuotaMove utility (<http://download.hsphere.parallels.com/shiv/WinBox/QuotaMove.exe>). For example, to move quote entries from disk D: to disk F:, execute in the command prompt:

```
QuotaMove.exe d:\ f:\
```

Maintaining HShome

This document explains how to maintain HShome directory on Winbox and to clean it from orphaned/redundant folders and files. Orphaned user files are redundant files that remain after deleting Parallels H-Sphere users from database.

HShome maintenance is performed with help of the `hshome_cleanup.js` script which also informs you of missing user home folders if they are not found.

➤ **To clean HShome from orphaned files:**

- 1 Download and unpack the hshome_cleanup script from http://download.hsphere.parallels.com/shiv/WinBox/hshome_cleanup.zip.

- 2 Run the script:

```
cscript hshome_cleanup.js <userslistfile> <hshome_path> <orphaned_path> [/f]
```

Where:

`cscript` - script interpreter

<userslistfile> - file with hsphere users list; usernames delimited by CRLF. Obtain it by running the following query:

```
select login from unix_user where hostid=N; [where N is
logical server ID]
```

<hshome_path> - location of HShome

<orphaned_path> - path to the existing folder where redundant files/folders will be moved.

[/f]: with this option files won't be moved at "hshome" root. As an example, you will run something like:

```
cscript hshome_cleanup.js users.txt d:\hshome d:\hsorphaned
```

As the result, all orphaned files will be moved to the specified directory.

Here is an example of script execution:

```
E:\>cscript hshome_cleanup.js users.txt e:\hshome e:\hsorphaned
Microsoft (R) Windows Script Host Version 5.6
Copyright (C) Microsoft Corporation 1996-2001. All rights reserved.
Users list file: users.txt
HShome location: e:\hshome
Orphaned location: E:\hsorphaned\

Moving files...
E:\hshome\1.reg... Ok
Warning!!! Missing user folder(s) found:
User: none
User: west

Orphaned folder(s) found:
Moving folder "testwil"... Ok
Moving folder "testwin"... Ok
Moving folder "unixtest"... Ok
Moving folder "userwind"... Ok
Moving folder "vmwin1"... Ok
Moving folder "win0422"... Ok
Moving folder "win0425"... Ok
Moving folder "winmiva4"... Ok
Moving folder "wintest"... Ok
Moving folder "wintst01"... Ok
Moving folder "wmwin1"... Ok

Finished
```

Changing hsadmin Login and Password

Parallels H-Sphere control panel accesses Windows boxes with the `hsadmin` user.

➤ *To change the `hsadmin` login and password:*

- 1 Generate a new password hash using the following tool:

<http://download.hsphere.parallels.com/shiv/WinBox/HashGenerator.zip>

In cmd window, run:

```
> HashGenerator.exe "password"
```

- 2 Put the new hash to the following line in the `[disk]:\HSphere.NET\bin\hsphere.config` file:

```
"prop name="password" value="new_HASH" description="Parallels  
H-Sphere user password"
```

- 3 Restart Parallels H-Sphere services and change the password on your administrator control panel for the Windows physical server.

Winbox IP Migration

This section explains how to migrate a pool of IPs on Parallels H-Sphere Winbox, including physical server IPs, logical server IPs, and user dedicated IPs. It is important that Parallels H-Sphere Winbox software is working correctly at the time of migration.

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Step 1. Bind Target IPs on Winbox

Make sure all the target IPs are up. If they aren't you can either bind them manually or use the following steps:

- 1 Create a file named, for instance, target_ips.txt with the list of IPs and masks to bind, as follows:

```
<IP1> <netmask>
<IP2> <netmask>
...
<IPn> <netmask>
```

- 2 Download IpCreator utility from <http://download.hsphere.parallels.com/shiv/WinBox/ipcreator.exe>.
- 3 Run the IpCreator utility:

```
IpCreator.exe target_ips.txt > log.txt
```

Step 2. Add Double Bindings on IIS

On this step, we will duplicate IP bindings for virtual web hosts on IIS to use old and new IP bindings simultaneously, which will help us avoid DNS propagation downtime.

- 1 Create a file named, for instance, ip_map.txt with space separated old and new IP correspondences, according to the following format:

```
<old IP1> <new IP1>
<old IP2> <new IP2>
...
<old IPn> <new IPn>
```

- 2 Download IpMigrator utility from <http://download.hsphere.parallels.com/shiv/WinBox/ipmigrator.exe>.
- 3 Run the IpMigrator utility:

```
ipmigrator.exe ip_map.txt > ipmigrator.log
```

Note: IpMigrator inserts new bindings AFTER the corresponding old bindings in the IIS metabase. Parallels H-Sphere uses the first binding to obtain virtual web host name and IP, which means, while the old bindings exist in the bindings list, Parallels H-Sphere will manage resources with the old IP. For instance, Parallels H-Sphere will add host aliases to the old IP's. Thus it is strongly recommended to remove old IP bindings as soon as they are not needed.

Step 3. Create Migration XML

Create file `ipmigration.xml` of the following format and put it on the CP server:

```
<?xml version="1.0"?>
<!DOCTYPE ips [
<!ELEMENT ips (ip+)>
<!ELEMENT ip (#PCDATA)>

<!-- ATTLIST -->
<!-- ip name -->
<!-- ip new_ip -->
<!-- ip new_mask -->
]
<!-- ip -->
<!-- Delete the lines with IPs you don't want to migrate! -->
<ip name="[Old_IP1]" new_ip="[New_IP1]"/>
<ip name="[Old_IP2]" new_ip="[New_IP2]"/>
<ip name="[Old_IP3]" new_ip="[New_IP3]"/>
<ip name="[Old_IP4]" new_ip="[New_IP4]" new_mask="[New_NetMask2]"/>
</ips>
```

You can find more information on `ipmigration.xml` in Changing IPs for the Parallels H-Sphere Cluster (on page 40).

Step 4. Run the Migration

- 1 Stop Parallels H-Sphere (on page 54)
- 2 Execute the following commands one by one on the CP server.
Replace `<LS_ID>` with the ID of the Winbox logical server. To find out the ID of the logical server, go to **E.Manager** -> **L.Servers** in Parallels H-Sphere admin panel.

```
java -Xms64M -Xmx512M psoft.hsphere.tools.IPMigratorFast --ip-
change --lServerIds=<LS_ID> ipmigration.xml
java -Xms64M -Xmx512M psoft.hsphere.tools.IPMigratorFast --
recreate-zone --lServerIds=<LS_ID> ipmigration.xml
java -Xms64M -Xmx512M psoft.hsphere.tools.IPMigratorFast --
service-zone --lServerIds=<LS_ID> ipmigration.xml
java -Xms64M -Xmx512M psoft.hsphere.tools.IPMigratorFast --
custom-rec --lServerIds=<LS_ID> ipmigration.xml
```

- 3 Start Parallels H-Sphere (on page 54)

Step 5. Remove Old IP Bindings on IIS

At this point in time, you have duplicate bindings of new and old IPs. It is recommended that you remove old IP bindings as soon as DNS servers across the world refresh themselves (usually in no more than 2 days).

The old bindings on IIS can be removed with the IpChange utility (), which uses the same IP map file as the IpMigrator utility (step 2 above).

- 1 Download IpChange utility from <http://download.hsphere.parallels.com/shiv/WinBox/ipchange.exe>
- 2 Run IpChange utility:

```
ipchange.exe ip_map.txt > ipchange.log
```
- 3 Restart Parallels H-Sphere (on page 54).

Uninstalling Winbox

Parallels H-Sphere Windows software can be uninstalled from a Windows server only manually.

➤ **To uninstall Winbox:**

- 1 Go to the directory `[disk]:\Hsphere\bin\`

- Unregister the HSSVC and HsQuotas services by running the commands:

```
hssvc /unregserver
HsQuotas /unregserver
```

- Remove the `HKEY_LOCAL_MACHINE\SOFTWARE\Psoft` key from the registry.

- 2 Remove the hsphere service by running in the command line:

```
[WinDir]\Microsoft.NET\Framework\[version]\InstallUtil.exe /u
[\hsphere.net]\bin\hsphere.exe
```

Where:

- **[WinDir]** is a path to the directory where Windows is installed (usually `C:\Windows`)
- **[version]** is a version of ASP.NET (v1.0.3705 or later)

[\hsphere.net] is a path to the directory where HSphere.NET is located For example:

```
C:\Windows\Microsoft.NET\Framework\v1.1.4322\InstallUtil.exe
/u C:\hsphere.net\bin\hsphere.exe
```

- 3 Go to the IIS interface (*Programs -> Administrative Tools -> Computer management -> Internet Information Services*) and perform one of the following two actions:

- If Parallels H-Sphere was set up on the default website, remove the CFG, Urchin, Webshell and MS SQL virtual directories;
- If Parallels H-Sphere was set up on a separate website, remove the website.

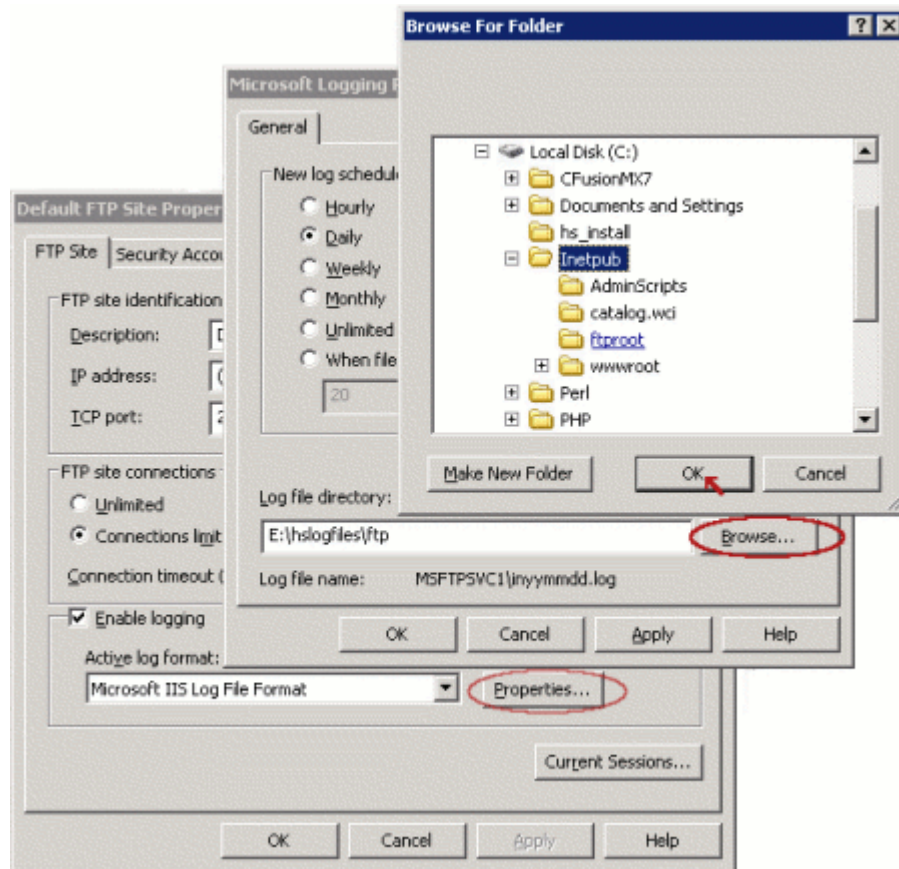
- 4 Check in the component services on the Parallels H-Sphere website for COM+ applications *cfg* and *cfg/net*. To do this:

Go to *Programs -> Administrative Tools -> Component Services -> My Computer -> COM+ Applications*

- Remove *IIS{Default Website Root/cfg/NET}* and *IIS{Default Website Root/cfg}*. In order to remove them, right-click on it and choose *Properties*, go to *Advanced* tab and uncheck *Disable Deletion* option.

- 5 In the IIS interface re-map default FTP root to the IIS directory (usually `c:\inetpub\ftproot`):

- Go to *FTP Sites*, right-click the *Default FTP Site -> Properties*.
- On the page that appears click *Properties*, then browse for folder and choose *ftproot* as shows below:



- 6 Re-map default web root to the IIS directory (usually `c:\inetpub\wwwroot`):
 - Go to *Web Sites*, right-click the *Default Web Site* -> *Properties*.
 - On the page that appears click *Properties*, then browse for folder and choose *wwwroot* as shows above on Step 5.
- 7 Remove the user that was created during the Parallels H-Sphere installation to administer Parallels H-Sphere (by default, it's user *HSadmin*).
- 8 Stop IIS service by running in the command line:


```
iisreset/stop
```
- 9 Remove the Parallels H-Sphere directories from their location: usually `C:\Hsphere` and `C:\Hsphere.Net`.
- 10 Restart IIS service by running in the command line:


```
iisreset
```

Important: do not delete the `<hsphere.net>` directory if it contains any of the packages installed. If you want to uninstall Parallels H-Sphere, uninstall all Parallels H-Sphere packages first.

Winbox Security Scheme

Parallels H-Sphere introduces a Winbox security scheme. The goal of the scheme is to get rid of 'LOCAL SYSTEM' identity for application pool processes of IIS 6.0, to simplify some tasks such as managing FrontPage and ASP.NET, and to make Parallels H-Sphere accounts hierarchy more structural.

IMPORTANT: 1. The Parallels H-Sphere version with the security scheme does not work with Serv-U FTP server.
2. For the security scheme to be operational, make sure to enable SOAP.

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Accounts Hierarchy

Features:

- There are several predefined security groups:
 - HS_ACCTS - contains all accounts created by Parallels H-Sphere on this server
 - HS_FTP_ACCTS - contains accounts created by Parallels H-Sphere which are used as FTP logins for Parallels H-Sphere users
 - HS_IUSR_ACCTS - contains accounts which are used as anonymous for Parallels H-Sphere virtual hosts
 - HS_FTP_SUBACCTS - contains accounts which are used as sub FTP logins
- During creation of a user, a special group is being created named as <user name>_group. This group contains all accounts related to a particular Parallels H-Sphere account, such as FTP login account, anonymous accounts for every virtual host owned by this user, and sub FTP logins accounts.

The following improvements have been made to accounts hierarchy:

- a subaccount is no longer a member of **<main account>_group**
- **<main account>_subaccts** group is being created for each account that has subaccounts
- any subaccount of a particular account becomes a member of **<main account>_subaccts** group
- NTFS permissions to particular subaccount home directory are given explicitly for this subaccount in addition to existing NTFS permissions for this directory

IIS Security Management

Features:

- The FTP account login is not used anymore as anonymous web access for all sites owned by the user. Instead of this, for each virtual host a separate account with random password is being created during virtual host creation procedure.
- The password synchronization IIS feature which requires 'LOCAL SYSTEM' identity for web application process is not used anymore. The reason for this is that this account and randomly generated password is registered in the metabase as anonymous for this particular virtual host.
- An account is being added to HS_ACCTS, HS_IUSR_ACCTS and Parallels H-Sphere account group. Each anonymous login has the following format:
<IUSR_user name> <virtual host number> where **<user name>** is Parallels H-Sphere FTP account title and **<virtual host number>** is number of particular virtual web host owned by this Parallels H-Sphere account.
- Now each IIS web application process is run under 'NETWORK SERVICE' identity. There is a number of Parallels H-Sphere modules run in IIS web processes which should perform some privileged operations such as read/write files or register keys protected by NTFS permissions. That is why Parallels H-Sphere creates a special 'HsISAPIAcct' account as a member of the 'Local Administrators' group. This account is used by Parallels H-Sphere IIS modules to perform such privileged operations. In addition, its password is being regenerated each time IIS is started for security reason.

NTFS permissions

There are permission schemes which are used for Windows 2000, Windows 2003, and for both platforms.

Windows 2000

The following NTFS permissions are set for a user home directory:

- Local Administrator group: FULL ACCESS
- SYSTEM: FULL ACCESS
- ASPNET account: READ ACCESS
- **<FTP account name>_group local group:** MODIFY, READ, WRITE, EXECUTE, LIST FOLDER CONTENT

Windows 2003

The following NTFS permissions are set for a user home directory:

- Local Administrator group: FULL ACCESS
- SYSTEM: FULL ACCESS
- NETWORK SERVICE: READ ACCESS
- **<FTP account name>_group local group:** MODIFY, READ, WRITE, EXECUTE, LIST FOLDER CONTENT

The following permissions are added to **<Parallels H-Sphere dir>bin** directory:

- NETWORK SERVICE: READ, EXECUTE, LIST FOLDER CONTENT

Relevant to both platforms

The following NTFS permissions are used for ODBC DSN registry key:

- Local Administrator group: FULL ACCESS
- SYSTEM: FULL ACCESS
- **<FTP account name>_group local group:** QUERY VALUE, SET VALUE, CREATE SUBKEY, ENUMERATE SUBKEYS, NOTIFY

FrontPage Server Extensions Management Notes

The following changes were made to FPSE management as a part of a new scheme:

- Anonymous access is assigned to *Browser* role for any FPSE enabled virtual host
- **<FTP account name>**_group local group is set as FPSE administrator for any FPSE enabled virtual host
- HsAuth ISAPI filter is no more used for FPSE enabled virtual hosts

ASP.NET Management Notes

- The ASP.NET management operations, which enable and disable ASP.NET service for a particular virtual web host, are based on the .NET framework configuration file machine.config.
- The following fragment is added to the machine.config file for a particular virtual host if ASP.NET is being disabled for this virtual host:

```
<location path="<virtual host domain name>"
allowOverride="false">
  <system.web>
    <authorization>
      <deny users="*" />
    </authorization>
  </system.web>
</location>>
```

- When ASP.NET service is enabled for a particular virtual host, it is being removed from machine.config file, if found.

Migration Notes

- During the Winbox upgrade, all existing accounts will be automatically migrated to a new security scheme. This process migrates account settings, web settings, NTFS permissions for home directories and ODBC DSNs, ASP.NET settings, FPSE settings and can take significant time.
- The migration procedure is performed once. If it's necessary for some reason to repeat the migration, the NewSecurity line should be removed from **<Parallels H-Sphere.NET dir>**bininstall.history file.
- Migration process can be monitored using migration log which can be found in the update.log log file of upgrade tool.

Important: during the migration, IIS servers will be automatically restarted on Windows 2003.

Recovery Notes

To perform server recovery (on page 447) or server to server movement, use the `SetSchrNs.exe` tool which is a new analogue of the `SetSchr.exe` tool. It has the same purpose as the older version, but sets the correct permissions for a new security scheme.

Download SetSchrNs Tool:

<http://download.hsphere.parallels.com/shiv/WinBox/SetSchrNs20.exe>

Migrating Serv-U to MS-FTP

Parallels H-Sphere Winbox 2.5 and up does not support Serv-U. Migrate Serv-U to MS-FTP before updating Winbox to Parallels H-Sphere 2.5 and up from older version. To do this, perform the steps listed below.

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Step 4. Reset Anonymous Access for All User Domains in IIS	278

Step 1. Create a User Account and User FTP Accounts in IIS FTP

Before creating a user account and user FTP accounts, make sure IIS FTP is installed. Then perform the following:

- 1 Export all usernames and passwords for physical server from CP database to a file. For this:

1. Login to CP under root:

```
su -l cpanel
psql hsphere wwwuser
```

2. Run:

```
select login, password from unix_user where hostid=???
```

Replace ??? with ID of the necessary Logical Server

- 2 Write down the result in the `users.txt` file in a folder `[drive:]\hsphere\scripts\` (e.g. `c:\hsphere\scripts\`). The format of results is as follows:

```
username pwd
```

```
username pwd
```

- 3 Make the following alterations to the `hsphere\scripts\conf.inc` file:

1. Change `ftpServer = "SERV-U"` to `ftpServer = "IIS"`

2. Run `regedit`

3. Go to `HKEY_LOCAL_MACHINE\SOFTWARE\Psoft\HSphere\Settings` and set `IIS FtpType`

4. Go to `HKEY_LOCAL_MACHINE\SOFTWARE\Psoft\HSphere\HsServULayer\Access\`, and delete the `Users` key. Then recreate the empty `Users` key.

5. Restart `hssvc` service in cmd window:

```
net stop hssvc
net start hssvc
```

6. restart `hsphere` service in cmd window:

```
net stop hsphere
net start hsphere
```

- 4 Create IIS Metabase backup.

- 5 Stop IIS:

1. Go to cmd

2. Run:

```
iisreset/stop
```

- 6 Rename Hshome folder to 1Hshome (e.g. d:\1hshome) and create empty Hshome folder (e.g. d:\Hshome). If it is possible, create the backup of hshome folder.

- 7 Create createusersp.asp script in the Hsphere\scripts\ folder:

```
<%@ LANGUAGE=JScript %> <!-- #include file ="consts.inc" -->
<!-- #include file ="conf.inc" --> <% Server.ScriptTimeout =
600 inetSrv = Server.CreateObject(comRsrcManager)
Server.Execute("/cfg/set-config.asp") fs = new
ActiveXObject("Scripting.FileSystemObject"); a =
fs.OpenTextFile(Server.MapPath("/cfg/users.txt"), 1, false);
diskQuota = Server.CreateObject("Microsoft.DiskQuota.1") while
(!a.AtEndOfLine) { record = a.ReadLine(); tokens =
record.split(new RegExp("[ \n\r\t]")); user = tokens[0];
password = tokens[1]; errCode = 0 aOptions = new
Array(useDedicatedUsersGroup) flags = new Array(1, 2, 4, 8,
16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384)
options = 0 for (i = 0; i < aOptions.length; i ++) { if
(aOptions[i] != 0) options |= flags[i] } errCode =
inetSrv.CreateUser(user, usersHome + "\\\" + user, "settler",
password, logPath, options) if (errCode != 0)
Response.Write("User: " + user + " failed<BR>\n") else
Response.Write("User: " + user + " = Ok<BR>\n")
Response.Flush() } a.Close(); %>
```

- 8 Run in browser window http://Target_IP/cfg/createusersp.asp Then put an hsdadmin login and password in authentication window
- 9 Delete empty Hshome folder, and rename 1Hshome to Hshome. Start IIS
- 10 Check if FTP accounts have been created for all users

Step 2. Reset NTFS Permissions

- 1 Download Recreation scripts from <http://download.hsphere.parallels.com/shiv/WinBox/ReCreateAddScripts.zip> in a zip archive and unpack them to a separate directory on the Winbox, for example recreation_scripts.
- 2 Set NTFS permission for Hshome folder:
- 3 Download the `setscrt.exe` utility from <http://download.hsphere.parallels.com/shiv/WinBox/SetScrt.exe>

- a Run it to set correct owner and NTFS permissions on user home directories: s

```
setscrt [-owner] [-ntfs] > setscrt.log
```

- b Running the setscrt utility with the -owner and -ntfs options separately, will break the process in two:

```
setscrt -owner > setscrt_owner.log
setscrt -ntfs > setscrt_ntfs.log
```

- c Check the log files for report.

- 4 (skip this step, if your Parallels H-Sphere version is 2.5+)
 - Reinstall ASP.NET for all accounts that have it enabled in CP

- a Get users and domains with installed ASP.NET from CP database. On this step, the scripts will be used in the recreation_scripts directory.
 - b Log into the system database and run the following DB query to select the domain names with ASP.NET support enabled:

```
select d.name,i.hostnum from parent_child p1,parent_child
p2,parent_child p3,parent_child p4,domains d,iis_vhost i where
i.host_id=??? and p1.child_id = i.id and p1.parent_id =
p2.child_id and d.id = p2.child_id and
p3.parent_id=p2.child_id and p4.parent_id=p3.child_id and
p4.child_type=63;
```

Replace ??? with the ID of the logical server you are recovering.

- c Copy the results of the query into a text file in the recreation_scripts directory and name it, for instance, aspnet.txt.

- d Enter the recreation_scripts directory and run the following command:

```
aspnetprepare.bat %1 %2 %3 %4 > aspnet_links.txt
```

where:

- **rem %1** - file name, e.g. aspnet.txt
- **rem %2** - Winbox IP
- **rem %3** - Parallels H-Sphere login used at Winbox installation
- **rem %4** - Parallels H-Sphere password used at Winbox installation

- e Open aspnet_links.txt and remove the first part leaving only the list of links.

- f Run the following command:

```
WGET.EXE -i aspnet_links.txt
```

This will recreate all ASP.NET resources on the Winbox.

Step 3. Recover Winbox quota

- 1 Log into the system database (on page 65) and run the following DB query to select the users and their space limit:

```
select unix_user.login, quotas.size_mb from unix_user,
parent_child, quotas where hostid=??? and
parent_child.parent_id=unix_user.id and
parent_child.child_id=quotas.id and
parent_child.child_type=4001;
```

Replace ??? with the ID of the logical server you are recovering.

- 2 Copy the results of the query into a text file in the recreation_scripts directory and name it, for instance, quotat.txt.
- 3 Enter the recreation_scripts directory and run the following command:

```
Rquota.bat %1 %2 %3 %4 > quota.txt
```

where:

- rem %1 - file name, e.g. quota.txt
- rem %2 - Winbox IP
- rem %3 - Parallels H-Sphere login used at Winbox installation
- rem %4 - Parallels H-Sphere password used at Winbox installation

- 4 Open quota.txt and remove the first part leaving only the list of links.
- 5 Recreate quota resource on the Winbox:

```
WGET.EXE -i quota.txt
```

Step 4. Reset Anonymous Access for All User Domains in IIS

- 1 Create setun.js file with the help of Notepad with the following content:

```
oldHome = new String(WScript.Arguments.item(0));
oldHome = oldHome.toLowerCase();
web = GetObject("IIS://LocalHost/W3SVC");
allWeb = new Enumerator(web);
var newDocRootPath, oldDocRootPath, stage = 0;
for ( ; !allWeb.atEnd(); allWeb.moveNext())
{
    if (isNaN(parseInt(allWeb.item().name))) continue;
    docRoot = GetObject("IIS://LocalHost/W3SVC/" +
allWeb.item().name + "/ROOT");
    docRoot.KeyType = "IIsWebVirtualDir";
    docRoot.SetInfo();
    oldDocRootPath = new String(docRoot.Path);
    oldDocRootPath = oldDocRootPath.toLowerCase();
    WScript.Echo("Site: " + allWeb.item().name);
    if (oldDocRootPath.indexOf(oldHome.toLowerCase()) == -1)
    { WScript.Echo("Site " + allWeb.item().name + " is not
Parallels H-Sphere web site");
```

```

continue;
}
tokens = docRoot.Get("Path").split(new RegExp("\\\\"));
username = tokens[tokens.length-2];
docRoot.Put("AnonymousUserName", username);
docRoot.Put("AnonymousPasswordSync", 1);
docRoot.SetInfo();
WScript.Echo("Document root for " + allWeb.item().name + " web
site has been changed to " + newDocRootPath);
}

```

2 Run in cmd window:

```
cscript setun.js [path to Hshome]
```

Example:

```
cscript setun.js e:\hshome
```

Note: anonymous access is reset only if domain properties path contains hshome folder and if domain is created by Parallels H-Sphere.

- 3** Restart IIS (on page 242). Go to `cmd->iisreset`
- 4** Go to `hsphere.net\bin\`. Open `install.history` file with the help of Notepad, select all the text, and delete it, save empty `install.history` file.
- 5** Run Parallels H-Sphere updater for Winbox.
- 6** If FTP subaccounts were created in Serv-U, recreate them via CP interface manually.
- 7** Open SOAP port 10125 for data communication between Control Panel and Windows server, in the `hsphere.properties` file on the Control Panel box.

Preparing Servers for MS Exchange Hosting (Hosted Messaging and Collaboration 3.0)

Note: This is the instruction for Hosted Messaging and Collaboration 3.0.

Before you start using MS Exchange hosting, you need to prepare at least 2 servers, separately of Parallels H-Sphere, with the following software installed:

- 1 Server 1 (Primary Domain Controller):** Windows 2003 SP1, Active Directory Domain Controller
- 2 Server 2 (MS Exchange Server):** Windows 2003 SP1, MSSQL 2000 SP3, MS Exchange 2003 SP1, Hosted Messaging and Collaboration 3.0, WS Exchange Provider Adapter Namespace

➤ ***To prepare Servers for MS Exchange Hosting:***

- 1** Install Required Software on the Servers (on page 281)
- 2** Deploy Hosted Messaging and Collaboration (on page 282)
- 3** Install WS Exchange Provider Adapter Namespace (on page 294)
- 4** Create Reseller Organization Unit (on page 294)

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Step 1. Install Required Software on the Servers

➤ *To install required software on the servers*

- 1** Install Window 2003 SP1 on both servers with English language interface.
- 2** Install MDAC 2.8 on Server 2.
- 3** Install IIS and ASP.NET on Server 2:
 1. On the taskbar, click Start, click Control Panel, select Add or Remove Programs, and then click Add/Remove Windows Components.
 2. Select Application Server, and then click Details.
 3. Select Internet Information Services (IIS), and then click Details.
 4. Install the following components: Internet Information Services Manager, World Wide Web Services, Common Files, ASP.NET
 5. Click OK, click OK again, and then click Next.
 6. After the wizard completes, click Finish and close the Add or Remove Programs dialog box.
- 4** Install MSSQL Server 2000 on Server 2.
- 5** Install MSSQL Server 2000 SP3 on Server 2.
- 6** Enable Network DTC and COM+ Network Access
 1. On the taskbar, click Start, open Control Panel, and then click Add or Remove Programs.
 2. Click the Add/Remove Windows Components button.
 3. Highlight Application Server, and then click Details.
 4. Select EnableNetwork COM+ access.
 5. Select EnableNetwork DTC access. Click OK.
 6. Click Next. When the Windows Components Wizard completes, click Finish.
- 7** Enable Inbound and Outbound DTC Access on Server 2
 1. Click Start, point to All Programs, point to Administrative Tools, and then click Component Services.
 2. Click and expand Component Services, and then click and expand Computers.
 3. Right-click My Computer, and then select Properties.
 4. Select the MSDTC Tab.
 5. Click the Security Configuration button.
 6. Ensure that Network DTC Access is enabled. Then, ensure that the Allow Inbound and Allow Outbound options are selected in the Transaction Manager Communication section. Leave all other options as default.
 7. Click OK to save the settings. Select Yes if you are prompted to restart the service.
- 8** Obtain Hosted Messaging and Collaboration 3.0 media.

- 9 Install Active Directory Domain Controller on Server 1 using the dcpromo.exe tool in Windows root directory.
- 10 Join Server 2 to installed domain.
- 11 Log on to Server 2 as a member of the Domain Administrators group.
- 12 Install MS Exchange server 2003 on Server 2.
- 13 Install MS Exchange server 2003 SP1 on Server 2.

Step 2. Deploy Hosted Messaging and Collaboration

➤ *To deploy Hosted Messaging and Collaboration*

- 1 Log on to Server 2 as a member of the Domain Administrators group.
- 2 Install the MPS (Microsoft Provisioning Service) deployment tool.
 1. Quit all running programs.
 2. Open command prompt, and change the directory to
SolutionMedia\Service Provisioning\Deployment Tool.
 3. To install the Deployment Tool on Server 2, run the following from the command prompt: `cscript initdeploymenttool.wsf`.

Note: If you are not installing from CD, you will be prompted to enter a path to the root directory of the solution media source files.

4. When prompted for the server name for configuration files, enter **Error! Hyperlink reference not valid.** 2 name>, and then click OK.
 5. When prompted for the server name for installation files, enter **Error! Hyperlink reference not valid.** 2 name>, and then click OK.
 6. In the *confirm configuration dialog box*, click Yes if the settings are correct, or click No to cancel.
 7. In *Do you want to install the deployment tool to the local computer?* dialog box, click Yes. A shortcut for the Deployment Tool will be added to the desktop of Server 2.
- 3 Install the MPF (Microsoft Provisioning Framework) Engine and Database
 1. Run the MPS Deployment Tool, and then click the Servers tab.
 2. Under SQL Servers, click Add.
 3. Enter <Server 2 name>, and then click OK.
 4. Under MPS Servers, click Add.
 5. Enter the name of the MPF Engine server as <Server 2 name>, and then click OK.
 6. In the Requirements Status pane, expand the Active Directory component, right-click Native Mode, and then select User input on the contextual menu that appears. In the Active Directory Native Mode dialog box, click OK.

7. Under the Active Directory component, right-click List Object Mode, and then select User Input on the contextual menu that appears. The Active Directory/list Object Mode dialog box appears and prompts you as to whether or not you want to proceed. Click OK.
8. In the Requirements Status pane, right-click the MPF Engine component, select Install on Server, and then click <Server 2 name>.
9. The icon next to the MPF Engine component changes to a silver disk to indicate that you have scheduled the installation of this component.

Note: Because of inherent dependencies, when you configure the MPF Engine to be installed on Server 2, other core MPS components are also installed on Server 2, and the MPFServiceAcct is scheduled to be created in Active Directory.

10. In the Requirements Status pane, right-click the MPF Config Database component, select Install on SQL Server, and then click <Server 2 name>.
11. Repeat step 3.10 for each of the MPF database components:
 - Resource Manager Database
 - MPF Audit Database
 - MPF Transaction Database
12. In the Requirements Status pane, right-click the Windows-based Hosting component, and then select Install this Group to install all the components. The Install This Group dialog box will display the list of items to be installed and actions to be performed. Click OK.
13. Click Start Deployment to start the installation of the MPF Engine, databases, and namespaces/providers on the server.
14. Monitor the deployment session on the Install Details tab.
15. When the deployment is complete, on the Action History tab, click View Details to review events.
16. Close the Provisioning Deployment Tool.

Note: When deployment completes, you will see that the following Namespace Initialization procedures are displayed with a red X, and the Install Details pane displays an unable to create the credential error.

Managed Helpers:InitializeNamespaceSecurity

Managed Web Hosting:InitializeNamespaceSecurity

Managed Sharepoint Hosting:InitializeNamespaceSecurity

This is an expected error.

4 Verify the MPFClientAccts Group on Server 2

1. Click Start, point to All Programs, point to Administrative Tools, and then click Computer Management.
2. Expand Local Users and Groups, and then click Groups.
3. Double-click Distributed COM Users, and then click the Members tab.
4. Verify that the <domain name>\MPFClientAccts group is member of Distributed COM Users group. Click OK.
5. Click OK to close the Distributed COM Users Properties dialog box.

5 Add MPFServiceAccts to the Local Administrators Group

1. On the taskbar, click Start, click All Programs, click Administrative Tools, and then click Computer Management.
2. Expand Local Users and Groups, and then click Groups.
3. Double-click the Administrators group.
4. Click Add, and then enter MPFServiceAccts. Select the Check Names check box to make sure that the name resolves, and then click OK.
5. Click OK to close the Administrator Properties window.

6 Reboot Server 2**7 Initialize Namespaces**

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, expand the Namespace Initialization component. Right-click Managed Helpers:InitializeADforHosting, and then select User Input.
3. When prompted for the name of the hosting organization, accept the default of Hosting, and then click OK.
4. Right-click Managed Helpers:InitializeADforHosting, and then select Execute Initialization Procedure.
5. In the Confirm Operation dialog box, click Yes.
6. Right-click Managed Helpers:InitializeNamespaceSecurity, and then select Execute Initialization Procedure.
7. In the Confirm Operation dialog box, click
8. When the deployment completes, close the MPS Deployment Tool.

8 Install the Plans Database

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, right-click Plans Database, select Install on Server, and then select <Server 2 name>.
3. Click Start Deployment.
4. When deployment completes, close the MPS Deployment Tool.
5. Run the MPS Deployment Tool.
6. In the Requirements Status pane, expand Namespace Initialization.
7. Right-click Managed Helpers: InitializePlanDatabase, and then select Execute Initialization Procedure.
8. In the Confirm Operation dialog box, click Yes.
9. When deployment completes, close the MPS Deployment Tool.

9 Install the MPS Web Services on Server 2

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, right-click Web Service, select Install on Server, and then select <Server 2 name>.
3. Below Web Service, right-click <Server 2 name>, and then select User Input.

4. In the New Virtual Directory box, enter MPSWS, and then click OK.

Note: After you assign the Web service and input the virtual directory name, the MPF Client will automatically be assigned for installation on Server 2

5. Click Start Deployment.
6. When the deployment completes, click OK, and then quit the MPS Deployment Tool.

10 Install Resource Manager Web Client on Server 2

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, right-click Resource Manager Web Client, select Install on Server, and then select <Server 2 name>.
3. Below Web Service, right-click <Server 2 name>, and then select User Input.
4. In the New Virtual Directory box, enter ResourceManagerWebClient, and then click OK.
5. Click Start Deployment.
6. When the deployment completes, click OK, and then quit the MPS Deployment Tool.

11 Initialize Hosted Exchange Provisioning Namespaces

1. Run the MPS Deployment Tool.
2. Expand Namespace Initialization.
3. Right-click Hosted Exchange: InitializeHostedExchange, and then select Execute Initialization Procedure. At the Confirm Operation dialog box, click Yes.

12 Configure the MPFServiceAccts Group As Exchange Full Administrator

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, right-click the top node where the name of your Exchange organization is displayed, and then click Delegate control to start the wizard.
3. Click Next, click Add, click Browse, select MPFServiceAccts from the list, and then click OK.
4. On the drop-down menu, click Exchange Full Administrator, click OK, click Next, and then click Finish. If prompted with a security dialog box, click OK.

13 Configure the Microsoft Provisioning System Server for Hosted Exchange

1. Run the MPS Provisioning Deployment Tool.
2. Under Microsoft Exchange, right-click Delegate Exchange Administration, then select Force State. At the Force State dialog box, select the Verified radio button and click OK.
3. Under Microsoft Exchange, right-click Disable Domain RUS, then select Install. The Confirm Operation dialog box appears and prompts you as to whether or not you want to proceed with an action that has an immediate effect. Click Yes.

4. Under Microsoft Exchange, right-click Secure All Address Lists, then select Install. The Confirm Operation dialog box appears and prompts you as to whether or not you want to proceed with an action that has an immediate effect. Click Yes.
5. Under Microsoft Exchange, right-click Native Mode, then select Install. The Confirm Operation dialog box appears and prompts you as to whether or not you want to proceed with an action that has an immediate effect. Click Yes.

Check the log information at the bottom of the Configuration Wizard screen to verify that the configuration was successfully set.

14 Configure the MPSEExchangeAccts Group As Exchange Full Administrator

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, right-click the top node where the name of your Exchange organization is displayed, and then click Delegate control to start the wizard.
3. Click Next, click Add, click Browse, select MPSEExchangeAccts from the list, and then click OK.
4. On the drop-down menu, click Exchange Full Administrator, click OK, click Next, and then click Finish. If prompted with a security dialog box, click OK.

15 Configure the All Address Lists Container

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, click the Recipients node, expand the tree.
3. Right-click the All Address Lists and select Properties.
4. Click the Security tab, click Advanced, and then click Add under Permissions.
5. In the Name text box, type MPSEExchangeAccts, and then click OK.
6. In the Apply onto list, select This object and subcontainers.
7. In the Permissions list, click Full Control.
8. Click OK three times.

16 Add the MPSEExchangeAccts Group to Local Administrators Group

17 Create Mailbox Stores for Hosted Exchange

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, expand Servers, then expand <Exchange Server>, and then expand First Storage Group.
3. Create any appropriate mailbox stores will be used as a Business Mailstores.

18 Initialize Resource Management

1. Launch Internet Explorer, and go to <http://localhost/ResourceManagerWebClient/QueryResources.aspx>.
2. When prompted for Username and Password, log in as <domain name>\Administrator.

3. Enter <Server 1 fullname> in the Preferred Domain Controller text box. Click Submit.
4. In the left pane, click Exchange Resource Manager. Then, select the Business Mailstores tab.
5. Add Business Mailstore resources.

Important: The <shared> value should always be set to 1 for Business mail stores

6. In the left pane, click Exchange Resource Manager. Then, select the Public Stores tab.
7. Under Publicstores, click Add New Resource.
8. Add Public Store resources
9. In the left pane, click Exchange Resource Manager, and then, select the OAB Servers tab.
10. Under OAB Servers, click Add New Resource.
11. Add OAB Server resources.

19 Install the Hosted Exchange Offline Address Book (OAB) and Update Batch Application (on page 289)

20 Deploy the MPS Sample Web Client

1. Run SetupMPSSampleWeb.msi from the Windows-based Hosting distribution media in the \Samples\Provisioning\MPSSampleWeb directory.
2. On the MPPSSampleWeb Setup Wizard Welcome page, click Next.
3. On the Select Installation Address page, accept the default Virtual Directory (MPSSampleWeb) and Port (80), and then click Next.
4. On the Confirm Installation page, click Next.
5. On the Installation Complete page, click Close.
6. Open the Internet Information Services (IIS) Manager, and then expand the default Web site.
7. Right-click MPSSampleWeb, and then select Properties.
8. Click the Directory Security tab, and then, under Authentication and access control, click Edit.
9. Clear the Enable atupMPSSampleWeb.msi from the Windows-based Hosting distribution media in the \Samples\Provisioning\MPSSampleWeb directory.
10. Ensure that the Integrated Windows Authentication check box is cleared.
11. Select the Basic authentication check box, and then, in the warning dialog box, click Yes.
12. Enter a backslash “\” in the default domain field.
13. Click OK, and then click OK again.
14. Close the IIS Manager window.
15. Edit the Web.Config file in the root directory of the MPS Sample Web Client (usually \inetpub\wwwroot\MPSSampleWeb). Set the following preferredDC and DefaultNamingContext key values to your preferred domain controller and default naming context. For example:

```
<appSettings>
<add key="preferredDC" value="Server_1_full_name"/>
<add key="DefaultNamingContext"
Value="DC=domain_name_part1,DC=domain_name_part2"/>
```

21 Disable the EventSink:

1. Go to C:\Program Files\Microsoft Hosting\Provisioning\MPSWS\ and open file web.config.
2. Find the <add key="EnableEventSink" value="1"/> string and change value to 0 (<add key="EnableEventSink" value="0"/>)
3. Save changes.

It will allow creating Exchange Recipient Policy for new SMTP domains.

In this section:

Installing the Hosted Exchange Offline Address Book (OAB) Update Batch Application 289

Installing the Hosted Exchange Offline Address Book (OAB) Update Batch Application

The Hosted Exchange OAB Update batch application runs on a daily schedule in order to rebuild OAB for organizations that have had membership modifications.

➤ *To install and configure it to run as a scheduled job, do the following:*

- 1 Install the Hosted Exchange OAB Update Batch Application (on page 290)
- 2 Configure Security for the Hosted Exchange OAB Update Batch Application Registry Keys (on page 291)
- 3 Configure Security Access for the Applications' Local File Resources (on page 292)
- 4 Configure Option Settings for the Hosted Exchange OAB Update Batch Application (on page 292)
- 5 Execute the Hosted Exchange OAB Update Batch Application (on page 293)
- 6 Create a Scheduled Task for the Hosted Exchange OAB Update Batch Application (on page 293)

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Step 1. Install the Hosted Exchange OAB Update Batch Application

- 1 Log on to Server2(Exchange) using an account that is a member of the Domain Administrators group.
- 2 From a command prompt in the `Service Provisioning\MPS\Install` folder, run the `ExchangeOABUpdate.msi` file. You must specify a password as follows:

```
msiexec.exe /i ExchangeOABUpdate.msi OABUSERPW=password
```

where `password` meets your Active Directory security requirements.

- 3 On the License Agreement page, select I accept the terms in the license agreement, and then click Next.
- 4 On the Customer Information page, enter the User Name and Organization, and then click Next.
- 5 On the Setup Type page, select Complete, and then click Next.
- 6 Click Install.
- 7 Click Finish to complete the installation and close the Installation Wizard.
- 8 Log on to Server1(DC) using an account that is a member of the Domain Administrators group.
- 9 On the taskbar, click Start, point to Administrative Tools, and then click Active Directory Users and Computers.
- 10 Expand `fabrikam.com`, and then select Users.
- 11 In the right pane, locate and right-click the `MPFClientAccts` user object, and then select Properties.
- 12 In the Properties dialog box, select the Members tab.
- 13 Click Add, type `MPSOABUpdateAccts` and then click Check Names. Verify that `MPSOABUpdateAccts` is underlined, and then click OK.
- 14 Click OK to close the Properties dialog box.

Note: By default, the `MPSOabUpdateAcct` is the only account that can execute the `HEOabUpdate.exe` application. If you want other users to be able to run the application, you must add them to the `MpsOabUpdateAccts` group. After adding users to the `MpsOabUpdateAccts` group, you must restart the Microsoft Provisioning Framework (MPF) engine for the changes to take effect.

Step 2. Configure Security for the Hosted Exchange OAB Update Batch Application Registry Keys

In the following procedures you will configure security access for the applications registry keys, local resources, and MPF procedures.

WARNING: Incorrectly editing the registry can cause serious problems that may require you to reinstall your operating system. Problems resulting from editing the registry incorrectly may not be resolved. Before editing the registry, back up any valuable data.

➤ ***To configure security access for the Hosted Exchange OAB Update Batch Application registry keys:***

- 1 Log onto Server2(Exchange) using an account that is a member of the Domain Administrators group
- 2 Start Registry Editor (regedit).
- 3 Navigate to the
HKEY_LOCAL_MACHINE\Software\Microsoft\Provisioning\HeOabUpdate key.
- 4 Click the Edit menu and select Permissions.
- 5 In the Permissions for HeOabUpdate dialog box, click Add.
- 6 Type MpsOabUpdateAccts and click Check Names to verify that the group exists.
- 7 Click OK.
- 8 Click Advanced.
- 9 Select MPSOabUpdateAccts in the permissions entries list and click Edit.
- 10 In the Apply onto list, ensure that this key and subkeys is selected.
- 11 In the Permissions list, leave the default values selected, and then select the Allow check box for the Set Value and Create Subkey permissions.
- 12 Click OK three times.
- 13 Close Registry Editor.

Step 3. Configure Security Access For the Applications Local File Resources

➤ ***To configure security access for the Hosted Exchange OAB Update Batch Application local resources***

- 1 Open File Explorer and navigate to **<drive>:\Program Files\Microsoft Hosting\Provisioning**.
- 2 Right-click the Exchange OAB Update directory and select Properties.
- 3 Select the Security tab and click Add.
- 4 Type `MpsOabUpdateAccts` and click Check Names to verify that the group exists. Click OK.
- 5 Ensure that the Allow check box for the Modify permission is selected.
- 6 Click OK.

Step 4. Configure Option Settings for the Hosted Exchange OAB Update Batch Application

In this procedure, you will edit the applications configuration file to change settings to appropriate values for your deployment.

➤ ***To configure optional settings for the Hosted Exchange OAB Update Batch Application:***

- 1 Remove the read-only attribute from `: \Program Files\Microsoft Hosting\Provisioning\Exchange OAB Update\HeOabUpdate.exe.config`, and then open the file.
- 2 Set the `preferredDomainController` value to the fully qualified domain name (FQDN) of your preferred domain controller as in the following example:

```
<configuration>
  <appSettings>
    <add key="eventLogLevel" value="Minimum"/>
    <add key="screenLogLevel" value="Minimum"/>
    <add key="logAllEventsToFile" value="true"/>
    <add key="preferredDomainController"
value="AD01.fabrikam.com"/>
  </appSettings>
</configuration>
```

Note: `AD01.fabrikam.com` is full computer name of Server1(Domain controller)

- 3 Save the file after making your changes

Step 5. Execute the Hosted Exchange OAB Update Batch Application

In the following procedure you execute the Hosted Exchange OAB Update batch application from the command line.

➤ **To execute Hosted Exchange OAB Update from a command line:**

- 1 Open a command prompt and navigate to : \Program Files\Microsoft Hosting\Provisioning\ Exchange OAB Update.
- 2 Type the following, and press Enter:
HeOabUpdate.exe
- 3 Close the command prompt when the application has finished processing.

Step 6. Create a Scheduled Task for the Hosted Exchange OAB Update Batch Application

In the following procedures you will create a scheduled task for the application.

➤ **To create a scheduled task to run Hosted Exchange OAB Update daily**

- 1 Point to Settings, and then click Control Panel.
- 2 Double-click Scheduled Tasks.
- 3 Double-click Add Scheduled Task.
- 4 In the Scheduled Task Wizard, click Next.
- 5 Click Browse, and then select : \Program Files\Microsoft Hosting\Provisioning\Exchange OAB Update\HeOabUpdate.exe.
- 6 Click Open.
- 7 Select the Daily option, and then click Next.
- 8 Set Start Time to 6:00 AM.
- 9 Click Next.
- 10 Enter the Fabrikam\MPSoabUpdateAcct user name and the password for this account. Click Next.

Where **Fabrikam** is active directory domain name

Note: Task Scheduler does not verify that the password you enter for the MPSoabUpdateAcct matches the password set for the user in Active Directory. If you enter an incorrect password, the task will fail when it runs at its scheduled time.

- 11 Click *Finish*.

Step 3. Install WS Exchange Provider Adapter Namespace

WS Exchange Provider Adapter Namespace (WS stands for "Web service") provides communication between Parallels H-Sphere and MS Exchange provider via HTTP in order to manage MS Exchange hosting in Parallels H- Sphere CP.

- 1 Download WS Exchange Provider Adapter Namespace installation:
<http://hsphere.parallels.com/download/wsexchangeprovider.msi>.
- 2 Run the downloaded MSI file and follow the installation instructions.

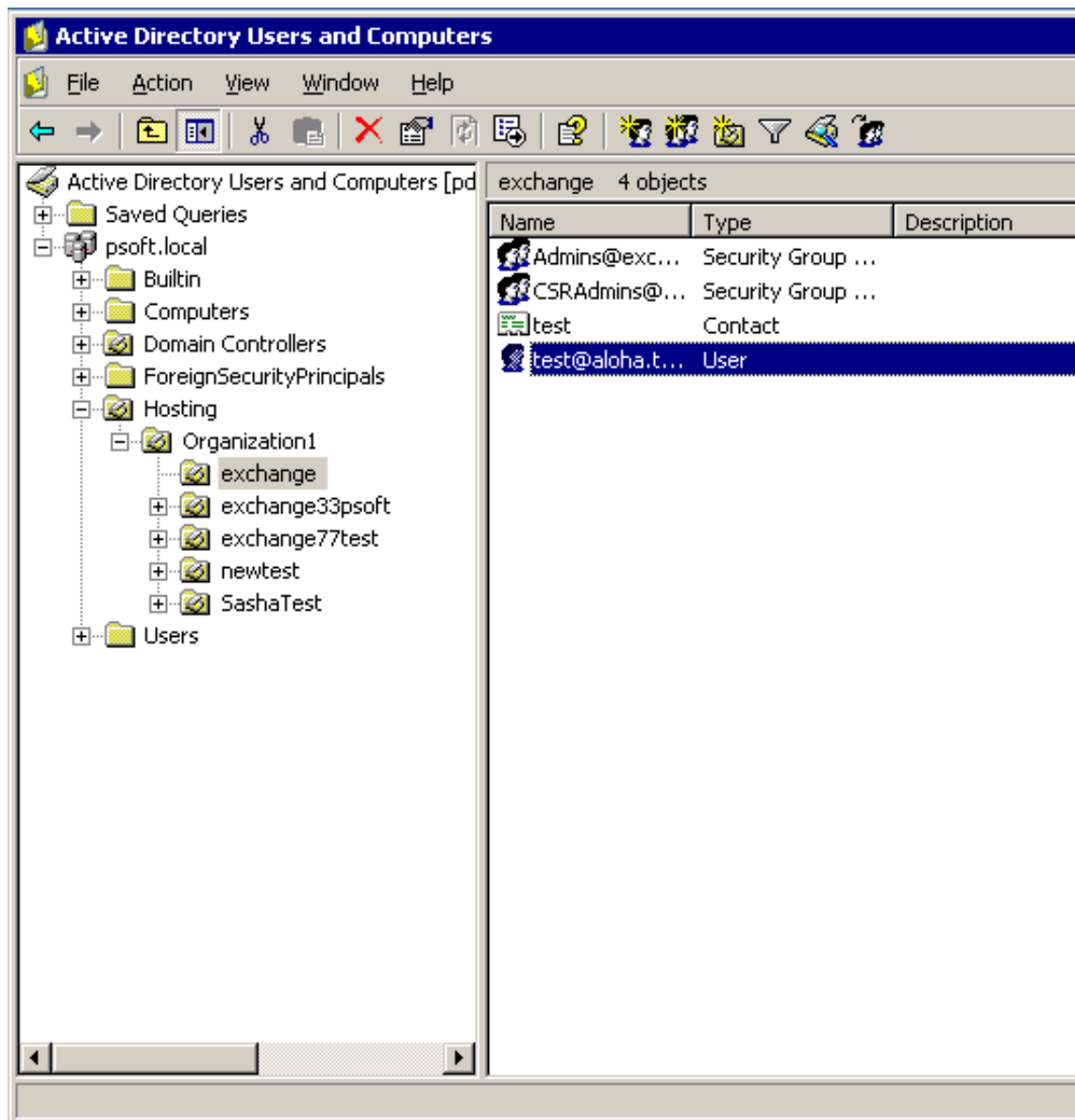
Step 4. Create Reseller Organization Unit

Create *reseller organization unit* under which Parallels H-Sphere users signed up for MS Exchange plans will be hosted. On Server 2:

- 1 In Internet Explorer, go to <http://localhost/MPSSampleWeb>
- 2 When prompted, log on as Domain Administrator.
- 3 Leave the Current Reseller and Current Customer fields empty.
- 4 Select the General tab.
- 5 In the left-hand pane, click Create a Reseller Organization.
- 6 Enter information about the organization in the appropriate boxes on the Create Reseller Org page
- 7 Click Submit Request.
- 8 When the request completes, you can review the XML response at the bottom of the page.

After that, you can proceed to configuring Microsoft Provisioning Framework in admin CP. This is described in MS Exchange section of Parallels H-Sphere Service Administrator Guide.

That's how the organization unit may look like when it is created and used for Parallels H-Sphere hosting:



In the above screenshot, *Organization1* is the reseller organization unit, and its organization units like *exchange* are Parallels H-Sphere user accounts with emails and distribution lists.

Preparing Servers for MS Exchange Hosting (Hosted Messaging and Collaboration 3.5)

Before you start using MS Exchange hosting, you need to prepare at least 2 servers, separately of Parallels H-Sphere, with the following software installed:

- 1 **Server 1 (Primary Domain Controller):** Windows 2003 SP1, Active Directory Domain Controller

- 2 Server 2 (MS Exchange Server):** Windows 2003 SP1, MSSQL 2000 SP3, MS Exchange 2003 SP1, Hosted Messaging and Collaboration 3.5, WS Exchange Provider Adapter Namespace

➤ ***To prepare Servers for MS Exchange Hosting:***

- 1** Install Required Software on the Servers (on page 297)
- 2** Deploy Hosted Messaging and Collaboration (on page 298)
- 3** Install WS Exchange Provider Adapter Namespace (on page 304)
- 4** Create Reseller Organization Unit (on page 304)

In this section:

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Step 4. Create Reseller Organization Unit	304

Step 1. Install Required Software on the Servers

- 1 Install Window 2003 SP1 on both servers with English language interface.
- 2 Install MSXML4 from <http://www.microsoft.com/downloads/details.aspx?FamilyID=3144b72b-b4f2-46da-b4b6-c5d7485f2b42&DisplayLang=en> on Server 2.
- 3 Install IIS (WWW, FTP, SMTP, NNNT) and ASP.NET on Server 2:
 1. On the taskbar, click Start, click Control Panel, select Add or Remove Programs, and then click Add/Remove Windows Components.
 2. Select Application Server, and then click Details.
 3. Select Internet Information Services (IIS), and then click Details.
 4. Install the following components: Internet Information Services Manager, World Wide Web Services, Common Files, ASP.NET
 5. Click OK, click OK again, and then click Next.
 6. After the wizard completes, click Finish and close the Add or Remove Programs dialog box.
- 4 Install MSSQL Server 2000 on Server 2.
- 5 Install MSSQL Server 2000 SP4 on Server 2.
- 6 Enable Network DTC and COM+ Network Access
 1. On the taskbar, click Start, open Control Panel, and then click Add or Remove Programs.
 2. Click the Add/Remove Windows Components button.
 3. Highlight Application Server, and then click Details.
 4. Select EnableNetwork COM+ access.
 5. Select EnableNetwork DTC access. Click OK.
 6. Click Next. When the Windows Components Wizard completes, click Finish.
- 7 Enable Inbound and Outbound DTC Access on Server 2
 1. Click Start, point to All Programs, point to Administrative Tools, and then click Component Services.
 2. Click and expand Component Services, and then click and expand Computers.
 3. Right-click My Computer, and then select Properties.
 4. Select the MSDTC Tab.
 5. Click the Security Configuration button.
 6. Ensure that Network DTC Access is enabled. Then, ensure that the Allow Inbound and Allow Outbound options are selected in the Transaction Manager Communication section. Leave all other options as default.
 7. Click OK to save the settings. Select Yes if you are prompted to restart the service.
- 8 Obtain Hosted Messaging and Collaboration 3.5 media.

- 9 Install Active Directory Domain Controller on Server 1 using the dcpromo.exe tool in Windows root directory.
- 10 Join Server 2 to installed domain (first configure a Server2 to use of new DNS on server1).
- 11 Log on to Server 2 as a member of the Domain Administrators group.
- 12 Install MS Exchange server 2003 on Server 2.
- 13 Install MS Exchange server 2003 SP1 on Server 2.

Step 2. Deploy Hosted Messaging and Collaboration

- 1 Log on to Server 2 as a member of the Domain Administrators group.
- 2 Install the MPS (Microsoft Provisioning Service) deployment tool.
 1. Quit all running programs.
 2. Open command prompt, and change the directory to Service Provisioning\DeploymentTool
 3. To install the Deployment Tool on Server 2, run the following from the command prompt: Deployment Tool.msi

Note: If you are not installing from CD, you will be prompted to enter a path to the root directory of the solution media source files.

4. When prompted for the server name for configuration files, enter **Error! Hyperlink reference not valid. 2 name>**, and then click OK.
 5. When prompted for the server name for installation files, enter **Error! Hyperlink reference not valid. 2 name>**, and then click OK.
 6. In the confirm configuration dialog box, click Yes if the settings are correct, or click No to cancel.
 7. In the Do you want to install the deployment tool to the local computer? dialog box, click Yes. A shortcut for the Deployment Tool will be added to the desktop of Server 2.
 8. Restart winbox after MPS (Microsoft Provisioning Service) deployment tool has been installed.
- 3 Create an MPS SQL Service Account for MPS Interaction with SQL-based Servers

Procedure DWSPV.11: To create a SQL service account on the domain controller

1. Log on to [\\Server1](#) using an account that is a member of the domain administrators group.
2. On the taskbar, click Start, point to Administrative Tools, and then click Active Directory Users and Computers.
3. Expand fabrikam.com (domain).
4. Right-click Users, point to New, and then click User.
5. In the New Object-User dialog box, type MPSSQLService as the First name and the User logon name, and then click Next.

6. In the next New Object - User dialog box, clear the User must change password at next logon check box. Enter the password (twice), and then select Password never expires.
 7. Click Next. Verify the information you have entered, and then click Finish.
- 4 Add MPSSQLService to the Local Administrators Group**

Procedure DWSPV.12: To add MPSSQLService to the local administrators group

1. Log on to [\\Server2](#) as a member of the domain administrators group.
 2. On the taskbar, click Start, point to All Programs, then to Administrative Tools, and then click Computer Management.
 3. Expand Local Users and Groups, and then click Groups.
 4. Double-click Administrators.
 5. Click Add, and then type MPSSQLService. Click Check Names to make sure that the name resolves, and then click OK.
 6. Click OK to close the Administrator Properties window.
- 5 Install the MPF (Microsoft Provisioning Framework) Engine and Database**

Procedure DWSPV.20: To deploy the Core Platform

1. Log on to [\\server2](#) as a member of the enterprise administrators group. Set your screen resolution to 1024 x 768 to properly display the Provisioning Deployment Tool interface when you start it.
2. On the [\\server2](#) desktop, double-click the shortcut to the MPS Deployment Tool.
3. Click the Servers tab, and then, under SQL Servers, click Add.
4. In the Add SQL Server dialog box, type **<Server 2 name>**, and then click OK.
5. Under MPS Servers, click Add.
6. In the Add Server dialog box, type the name of the MPF Engine server as **<Server 2 name>**, and then click OK.
7. In the Requirements Status pane, expand Core Platform, expand Initialize Active Directory, right-click Native Mode, and then select Confirm irreversible Native Mode conversion. In the Active Directory /Native Mode dialog box, click OK. Right-click Native Mode and then select Install.
8. Under the Initialize Active Directory component, right-click List Object Mode, and then select Install.
9. In the Requirements Status pane, expand Core MPF Install, right-click the MPF Engine component, select Install on Server, and then click **<Server 2 name>**. The icon next to the MPF Engine component changes to a silver disk to indicate that you have scheduled the installation of this component.
10. In the Requirements Status pane, under Core MPF Install, expand MPF Config Database. Right-click SQL not assigned, select Install on SQL Instance, and then click **<Server 2 name>**.
11. Repeat step 10 for each of the MPF database components:
 - Resource Manager Database

- MPF Audit Database
 - MPF Transaction Database
12. In the Requirements Status pane, under Core MPF Install, right-click the MPF Audit and Recovery component, point to Install on Server, and then click Add New Server.
 13. Right-click the MPF Audit and Recovery component, point to Install on Server, and then click Add New Server.
 14. In the Requirements Status pane, right-click Core Platform, and select Install all in this group.
 15. If prompted with the Confirm Install on Dependents dialog box, review the list of actions to be performed, and click OK.
 16. Click Start Deployment to start the installation of the MPF Engine, databases, and namespaces/providers on the server.
 17. Monitor the deployment session on the Install Details tab.
 18. When the deployment is complete, on the Action History tab, click View Details to review events.
 19. Close the Provisioning Deployment Tool.

6 Install the Plans Database

Procedure DWSPV.21: To deploy the Hosting Platform

1. In the MPS Deployment Tool, in the Requirements Status pane, expand Hosting Platform, expand Hosted PlansDatabase, then expand Plans Database.
2. Right-click Server not assigned, click Install on Server, then click **<Server 2 name>**.
3. Under Plans Database, right-click **<Server 2 name>** and click Select SQL instance.
4. In the Select SQL Server dialog box, type **<Server 2 name>** and then click OK.
5. In the Requirements Status pane, below Hosting Platform, expand Initialize Default Services.
6. Right-click Initialize Active Directory for Hosting, then select Set procedure parameters.
7. When prompted for the name of the hosting organization, accept the default of Hosting and then click OK.
8. In the Requirements Status pane, right-click Hosting Platform, and select Install all in this group.
9. Click Start Deployment to start the installation of the Plans Database and Hosting Platform Service Components.
10. Monitor the deployment session on the Install Details tab.

7 Install the MPS Web Services on Server 2

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, right-click Web Service, select Install on Server, and then select **<Server 2 name>**.
3. Under Business Web Service->**<Server 2 name>**, right-click on the New Virtual Directory box, enter MPSWS, and then click OK.

Note: After you assign the Web service and input the virtual directory name, the MPF Client will automatically be assigned for installation on Server 2.

4. Click Start Deployment.
5. When the deployment completes, click OK, and then quit the MPS Deployment Tool.

8 Install Resource Manager Web Client on Server 2

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, right-click Web Services->Resource Manager Web Client, select Install on Server, and then select **<Server 2 name>**.
3. In the New Virtual Directory box, enter ResourceManagerWebClient, and then click OK.
4. Click Start Deployment.
5. When the deployment completes, click OK, and then quit the MPS Deployment Tool.

9 Initialize Hosted Exchange Provisioning Namespaces

1. Run the MPS Deployment Tool.
2. In the Requirements Status pane, expand Hosted Exchange.
3. Expand Exchange Platform.
4. Right-click Hosted Exchange Namespace, and then click Execute. Initialize Hosted Exchange Namespace. Make sure to check if Exchange organization is being set correctly.
5. Click Start Deployment.

10 Configure the MPFServiceAccts Group As Exchange Full Administrator

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, right-click the top node where the name of your Exchange organization is displayed, and then click Delegate control to start the wizard.
3. Click Next, click Add, click Browse, select MPFServiceAccts from the list, and then click OK.
4. On the drop-down menu, click Exchange Full Administrator, click OK, click Next, and then click Finish. If prompted with a security dialog box, click OK.
5. Initialize Hosted Exchange Provisioning Platform.
6. In this procedure you will initialize your environment for Hosted Exchange provisioning.

11 Configure the Microsoft Provisioning System Server for Hosted Exchange

Procedure DP.3: To initialize Hosted Exchange provisioning namespaces

1. Log on to **<Server 2 name>** as a member of the Domain Administrators group.
2. Run the MPS Deployment Tool.
3. Expand Hosted Exchange.

4. Expand Exchange Platform.
5. Right-click Native Mode, and then click "Confirm irreversible Native Mode conversion".
6. At the Microsoft Exchange/Native Mode dialog box, click OK.
7. Right-click Exchange Platform, and then select Install all in this group.
8. Click Start Deployment.

Check the log information at the bottom of the Configuration Wizard screen to verify that the configuration was successfully set.

12 Configure the MPSEExchangeAccts Group As Exchange Full Administrator

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, right-click the top node where the name of your Exchange organization is displayed, and then click Delegate control to start the wizard.
3. Click Next, click Add, click Browse, select MPSEExchangeAccts from the list, and then click OK.
4. On the drop-down menu, click Exchange Full Administrator, click OK, click Next, and then click Finish. If prompted with a security dialog box, click OK.

13 Configure the All Address Lists Container

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, click the Recipients node, expand the tree.
3. Right-click the All Address Lists and select Properties.
4. Click the Security tab, click Advanced, and then click Add under Permissions.
5. In the Name text box, type MPSEExchangeAccts, and then click OK.
6. In the Apply onto list, select This object and subcontainers.
7. In the Permissions list, click Full Control.
8. Click OK three times.

14 Add the MPSEExchangeAccts Group to Local Administrators Group

15 Create Mailbox Stores for Hosted Exchange (only for enterprise exchange)

1. Click Start, point to Programs, point to Microsoft Exchange, and then click System Manager.
2. In the console tree, expand Servers, then expand <Exchange Server>, and then expand First Storage Group.
3. Create any appropriate mailbox stores will be used as a Business Mailstores.

16 Initialize Resource Management

1. Restart IIS on server2
2. Launch Internet Explorer, and go to <http://localhost/ResourceManagerWebClient/QueryResources.aspx>.

3. When prompted for Username and Password, log in as **<domain name>\Administrator**.
 4. Enter **<Server 1 fullname>** in the Preferred Domain Controller text box. Click Submit.
 5. In the left pane, click Exchange Resource Manager. Then, select the Business Mailstores tab.
 6. Add Business Mailstore resources.
 7. **Important:** The <shared> value should always be set to 1 for Business mail stores
 8. In the left pane, click Exchange Resource Manager. Then, select the Public Stores tab.
 9. Under Publicstores, click Add New Resource.
 10. Add Public Store resources (Server and Public Store names you can find in Exchange System Manager).
 11. In the left pane, click Exchange Resource Manager, and then, select the OAB Servers tab.
 12. Under OAB Servers, click Add New Resource.
 13. Add OAB Server resources.
- 17** Install the Hosted Exchange Offline Address Book (OAB) Update Batch Application (on page 289)
- 18** Deploy the MPS Sample Web Client
1. Run SetupMPSSampleWeb.msi from the Windows-based Hosting distribution media in the `\Samples\Provisioning\MPSSampleWeb` directory.
 2. On the MPPSSampleWeb Setup Wizard Welcome page, click Next.
 3. On the Select Installation Address page, accept the default Virtual Directory (MPSSampleWeb) and Port (80), and then click Next.
 4. On the Confirm Installation page, click Next.
 5. On the Installation Complete page, click Close.
 6. Open the Internet Information Services (IIS) Manager, and then expand the default Web site.
 7. Right-click MPSSampleWeb, and then select Properties.
 8. Click the Directory Security tab, and then, under Authentication and access control, click Edit.
 9. Clear the Enable anonymous access check box.
 10. Ensure that the Integrated Windows Authentication check box is cleared.
 11. Select the Basic authentication check box, and then, in the warning dialog box, click Yes.
 12. Enter a backslash “\” in the default domain field.
 13. Click OK, and then click OK again.
 14. Close the IIS Manager window.

15. Edit the Web.Config file in the root directory of the MPS Sample Web Client (usually `\inetpub\wwwroot\MPSSampleWeb`). Set the following preferredDC and DefaultNamingContext key values to your preferred domain controller and default naming context. For example:

```
<appSettings>
<add key="preferredDC" value="Server_1_full_name"/>
<add key="DefaultNamingContext"
Value="DC=domain_name_part1,DC=domain_name_part2"/>
example test.ts.com Value="DC=test,DC=ts,DC=com"
```

19 Disable the EventSink:

1. Go to `C:\Program Files\Microsoft Hosting\Provisioning\MPSWS\` and open file `web.config`.
2. Find the `<add key="EnableEventSink" value="1"/>` string and change value to 0 (`<add key="EnableEventSink" value="0"/>`)
3. Save changes.

It will allow creating Exchange Recipient Policy for new SMTP domains.

Step 3. Install WS Exchange Provider Adapter Namespace

WS Exchange Provider Adapter Namespace (WS stands for "Web service") provides communication between Parallels H-Sphere and MS Exchange provider via HTTP in order to manage MS Exchange hosting in Parallels H-Sphere CP.

- 1 Download WS Exchange Provider Adapter Namespace installation:
<http://hsphere.parallels.com/downloads/wsexchangeprovider.msi>.
- 2 Run the downloaded MSI file and follow the installation instructions.

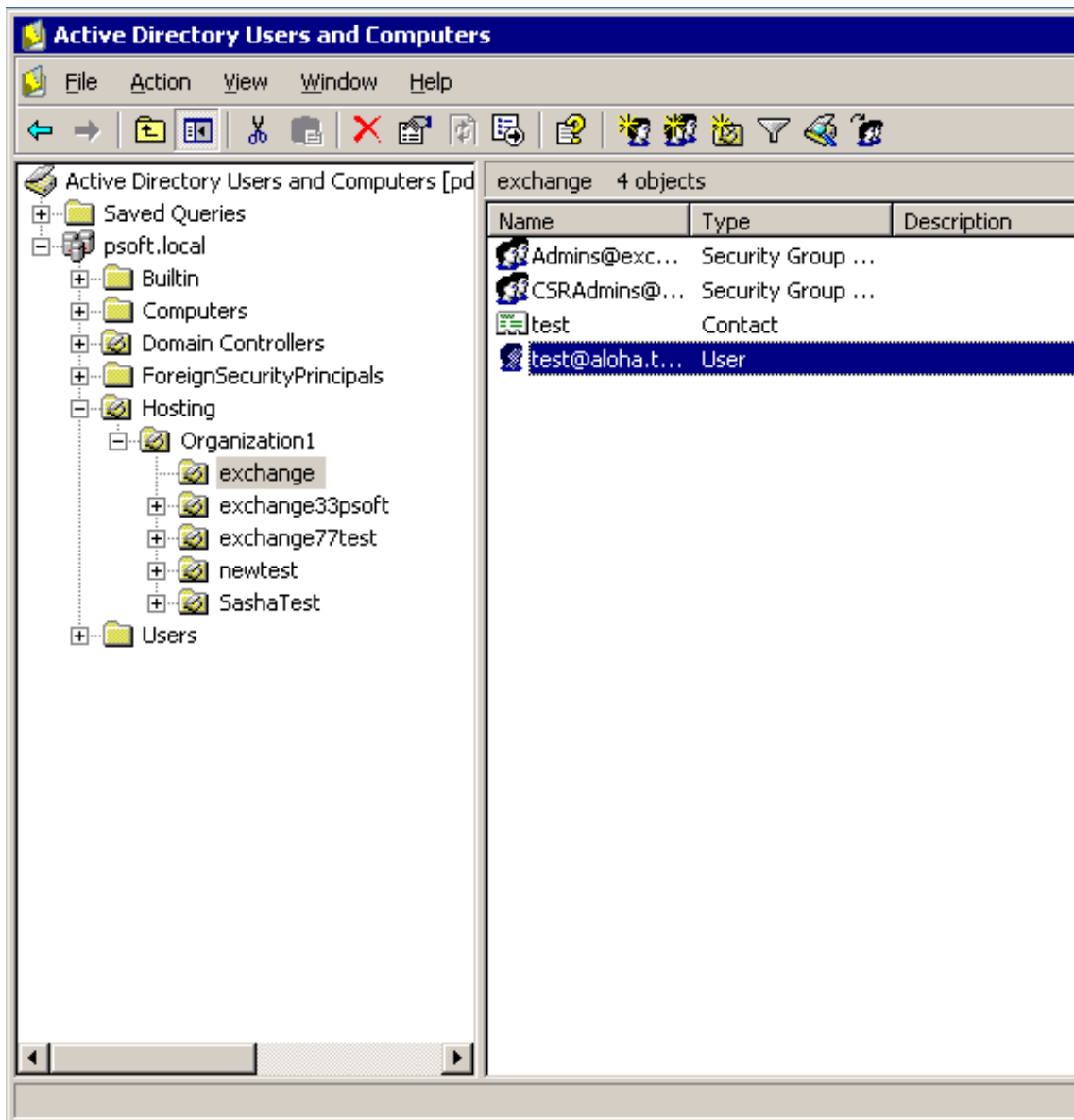
Step 4. Create Reseller Organization Unit

Create *reseller organization unit* under which Parallels H-Sphere users signed up for MS Exchange plans will be hosted. On Server 2:

- 1 In Internet Explorer, go to `http://localhost/MPSSampleWeb`
- 2 When prompted, log on as Domain Administrator.
- 3 Leave the Current Reseller and Current Customer fields empty.
- 4 Select the General tab.
- 5 In the left-hand pane, click Create a Reseller Organization.
- 6 Enter information about the organization in the appropriate boxes on the Create Reseller Org page
- 7 Click Submit Request.
- 8 When the request completes, you can review the XML response at the bottom of the page.

After that, you can proceed to configuring Microsoft Provisioning Framework in admin CP. This is described in MS Exchange section of Parallels H-Sphere Service Administrator Guide.

That's how the organization unit may look like when it is created and used for Parallels H-Sphere hosting:



In the above screenshot, *Organization1* is the reseller organization unit, and its organization units like *exchange* are Parallels H-Sphere user accounts with emails and distribution lists.

Calculating Winbox Traffic

In Parallels H-Sphere the system writes winbox traffic data to XML logfiles:

- YYYY-MM-DD.web.xml - http traffic,
- YYYY-MM-DD.ftpg.xml - guest ftp traffic,
- YYYY-MM-DD.ftpa.xml - anonymous ftp traffic.

Example:

```
<TrafficEntries>
  <DailyEntries Date="2005-10-28" Type="web">
    <Entry Name="domain1.wincp241.test">
      <Incoming>7782</Incoming>
      <Outgoing>39060</Outgoing>
      <Hits>15</Hits>
      <HtmlHits>8</HtmlHits>
    </Entry>
    <Entry Name="domain2.wincp241.test">
      <Incoming>3493</Incoming>
      <Outgoing>38549</Outgoing>
      <Hits>8</Hits>
      <HtmlHits>2</HtmlHits>
    </Entry>
  </DailyEntries>
</TrafficEntries>
```

These xml files are saved to the C:\HSphere.NET\data\services\traffic\ directory. Once a day TrafficLoader (on page 36) parses these files using SOAP and writes statistic data into the translog table of the Parallels H-Sphere system database. After that these files are deleted and created anew on the next day.

Creating Mail Plan on MPS Server

This document is an example of how to create a new **Mail Plan** on MPS Server (Server2, i.e MS Exchange Server).

➤ **To create mail plan on MPS Server:**

1 Remove the read-only attribute and then edit

<installdir>:\Program Files\Microsoft Hosting\Provisioning\Samples\Hosted Exchange Namespace\CreateMailboxPlan.XML. The following example shows the XML in the shipped version of this file:

```
<request xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<procedure xmlns:xsl='http://www.w3.org/1999/XSL/Transform'>
<execute namespace="Hosted Exchange"
procedure="CreateMailboxPlan" impersonate="1">
<executeData>
<planName>PopMail</planName>
<planDescription>POP3 Mail</planDescription>
<planCategories>
<category>
<categoryName>HeBusiness</categoryName>
</category>
<category>
<categoryName>HeConsumer</categoryName>
</category>
</planCategories>
<planFeatures>
<feature>
<featureName>OWA</featureName>
<featureDescription>Outlook Web Access
Disabled</featureDescription>
<featureValue>1</featureValue>
</feature>
<feature>
<featureName>IMAP</featureName>
<featureDescription>IMAP Access Disabled</featureDescription>
<featureValue>1</featureValue>
</feature>
<feature>
<featureName>POP</featureName>
<featureDescription>POP Access Enabled</featureDescription>
<featureValue>0</featureValue>
</feature>
<feature>
<featureName>MailboxSize</featureName>
<featureDescription>Mailbox size in
kilobytes</featureDescription>
<featureValue>10000</featureValue>
<unitDescription>kb</unitDescription>
</feature>
```

```

</planFeatures>
<preferredDomainController>AD01.fabrikam.com</preferredDomainC
ontroller>
</executeData>
<after source="executeData" destination="data" mode="merge"/>
</execute>
</procedure>
</request>

```

- 2** Edit the `<planName>` element as follows:

```
<planName>SimpleMail</planName>
```

- 3** Edit the `<planDescription>` element this way:

```
<planDescription>Basic POP3 Mailbox</planDescription>
```

- 4** Edit the `<preferredDomainController>` value, where AD01.fabrikam.com is the full name of Active Directory domain controller server.

- 5** The edited file should now look like the following:

```

<request xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<procedure xmlns:xsl='http://www.w3.org/1999/XSL/Transform'>
<execute namespace="Hosted Exchange"
procedure="CreateMailboxPlan" impersonate="1">
<executeData>
<planName>SimpleMail</planName>
<planDescription>Basic POP3 Mailbox</planDescription>
<planCategories>
<category>
<categoryName>HeBusiness</categoryName>
</category>
<category>
<categoryName>HeConsumer</categoryName>
</category>
</planCategories>
<planFeatures>
<feature>
<featureName>OWA</featureName>
<featureDescription>Outlook Web Access
Disabled</featureDescription>
<featureValue>1</featureValue>
</feature>
<feature>
<featureName>IMAP</featureName>
<featureDescription>IMAP Access Disabled</featureDescription>
<featureValue>1</featureValue>
</feature>
<feature>
<featureName>POP</featureName>
<featureDescription>POP Access Enabled</featureDescription>
<featureValue>0</featureValue>
</feature>
<feature>
<featureName>MailboxSize</featureName>

```

```

<featureDescription>Mailbox size in
kilobytes</featureDescription>
<featureValue>10000</featureValue>
<unitDescription>kb</unitDescription>
</feature>
</planFeatures>
<preferredDomainController>AD01.fabrikam.com</preferredDomainC
ontroller>
</executeData>
<after source="executeData" destination="data" mode="merge"/>
</execute>
</procedure>
</request>

```

- 6 Save the edited file in the in the <installdir>:\Program Files\Microsoft Hosting\Provisioning\Samples\Hosted Exchange Namespace\ directory as *CreateSimpleMailPlan.xml*.
- 7 From a command prompt in the <installdir>:\Program Files\Microsoft Hosting\Provisioning\Samples\Hosted Exchange Namespace\ directory, execute provtest *CreateSimpleMailPlan.XML* (ProvTest.exe is located in C:\Program Files\Microsoft Provisioning\Tools).

You now have a mailbox plan called SimpleMail, which enables a 10 MB mailbox for use by POP3 clients. This plan will show up as available to add to new organizations. Also you can edit other features like MailboxSize.

By default, MPS sets mailbox size using the following scheme:

<size> - Mailbox size in kilobytes (equivalent to ProhibitSendQuota)
 <warningQuota> - the default one is 90 percent of size
 <prohibitSendAndReceiveQuota> - the default one is 500 percent of size

So if you create a mailbox with the size of 100Mb, the parameters will be as follows:

- *Warning Quota* - 90MB
- *Prohibit Send Quota* - 100MB
- *Prohibit Send And Receive Quota* - 500MB.

Note: if the size of mailbox is ~2GB (maximum), the <prohibitSendAndReceiveQuota> parameter will have the maximum possible value (not 5x2GB).

Read more about Mailbox store prohibit send and receive limits of mailboxes at Microsoft documentation: <http://technet.microsoft.com/en-us/library/79f14549-6c7b-4073-8628-b93654f3659e.aspx>.

Microsoft SQL Server

Microsoft SQL, like other commercial third party products, is purchased and installed separately from Parallels H-Sphere.

Microsoft SQL Server is a fully Web-enabled database with the ability to query the database through a browser and rich Extensible Markup Language (XML) support. In addition, Microsoft SQL Server holds benchmark records for scalability and reliability, both of which are crucial for the success of an enterprise database.

For extensive coverage of Microsoft SQL Server, please refer to <http://www.microsoft.com/sql/default.asp>.

In this chapter:

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Installing Microsoft SQL 2005 Server	312
Moving MS SQL Databases Across Servers	313
Moving MS SQL Databases to a New Location	314

Installing Microsoft SQL 2000 Server

This document explains how to install MS SQL database software and integrate it with the Parallels H-Sphere system.

Parallels H-Sphere supports both Microsoft SQL 7.0 and Microsoft SQL 2000 servers.

MS SQL server can be installed on an Parallels H-Sphere Windows server. This means, the server must have Parallels H-Sphere Windows software installed and be added to the Parallels H-Sphere configuration.

➤ **To install MS SQL server:**

- 1 Buy a License package.
- 2 Install MS SQL server following the directions of the installation wizard.
- 3 Configure Parallels H-Sphere connection settings to work with MS SQL server.
 - If you already have MS SQL server and are installing Parallels H-Sphere, follow Parallels H-Sphere Winbox Installation Guide.
 - If Parallels H-Sphere was installed earlier and you are adding MS SQL server to it, set the following three values for MS SQL Server variables in the `<HSPHERE_HOME_DIR>/script/conf.inc` file on the Windows server:
 - **mssqlServer** = IP of the MS SQL server if it works through TCP/IP or the server name if MS SQL uses pipe connection.
 - **mssqlHSLogin** = a login with system administrator privileges for the MS SQL server. You can create this login by means of MS SQL Enterprise Manager. If there is any login registered earlier with the same privileges, you can use it, too.
 - **mssqlHSPasswd** = password for this login.
- 4 Go to *SQL Server Properties -> Security* and choose *SQL Server Authentication and Windows Authentication* to allow Parallels H-Sphere and your customers to access MS SQL server remotely.

Installing Microsoft SQL 2005 Server

This document explains how to install MS SQL database software and integrate it with the Parallels H-Sphere system.

Parallels H-Sphere 2.5.0 and higher supports Microsoft SQL Server 2005 (<http://www.microsoft.com/technet/prodtechnol/sql/2005/default.msp>).

MS SQL server can be installed on Parallels H-Sphere Windows server. This means the server must have Parallels H-Sphere Windows software installed and be added to the Parallels H-Sphere configuration.

To add MS SQL 2005 to winbox with Parallels H-Sphere installed:

1 Install ASP.NET 2.0 and check the version of ASP.NET.

RootVer must be 2.0.XXXX, not 1.1.XXXX in the registry

HKLM/Software/Microsoft/ASP.NET.

If RootVer is 1.1.XXXX:

- Go to C:\Windows\Microsoft.NET\Framework\v2.0.5xx\ through command line
- Run from command line:

```
aspnet_regiis -r
```

- Restart IIS :

```
iisreset /restart
```

- 2** Install MS SQL server following the directions of the installation wizard. If you installed SQL 2005, you should also install SQL Server Management Studio Express.
- 3** In SQL Server Management Studio Express create login with system administrator privileges for the MS SQL server. As a rule, login 'sa' is used.
- 4** Configure Parallels H-Sphere connection settings to work with MS SQL server:

Note: Parallels H-Sphere 3.0 + uses Windows authentication method to connect to MSSQL server. Therefore MSSQL server should be installed locally on the same server with Parallels H-Sphere.

Go to /hsphere.net/bin/hsphere.config file and make sure the NAME_OF_YOUR_SQL_SERVER is set correctly in:

```
prop name="server" value="NAME_OF_YOUR_SQL_SERVER"
description="MSSQL server name or IP"
```

- 5** Go to *SQLServer Properties -> Security*. Chose *SQL Server Authentication and Windows Authentication* to allow Parallels H-Sphere and your customers to access MS SQL server remotely.

- 6 Make sure that MS SQL server IP set as a logical server IP in the **E.Manager** menu is set in *Start -> Programs -> MSSQL 2005 Server -> Configuration Tools -> SQL Server Configuration Manager -> SQL Server Network Configuration -> Protocols for MSSQLSERVER -> TCP/IP(enabled) -> Properties -> IP Addresses tab*. Make sure this IP is there with *Active* and *Enabled* set to *Yes*.
- 7 In your CP add *MS SQL server* group to the physical winboxes with MS SQL installed.
- 8 Add logical MS SQL servers in CP and add IP addresses for it.
- 9 On winboxes run the following commands:


```
net stop hsphere
net start hsphere
```
- 10 Turn on MS SQL servers in the user's Plan Edit Wizard. After that, try creating MS SQL databases from user's CP.

Moving MS SQL Databases Across Servers

➤ **To move the databases from one MS SQL server to another:**

- 1 Install the new MS SQL server, keeping the same path to databases as for the old server. That means, databases on the new server should be located on the same disc and necessarily in the same directory as for the old server. For example, on the old server data is located on `d:\mssql\data\`, so the data on the new server should be located in the same directory.
- 2 Stop the new MS SQL server.
- 3 Copy all MS SQL database files including the "master" database which keeps all logins information and other necessary information.

Important: All database files should be put into the same directory as for the old server.

- 4 Start the new MS SQL server.
- 5 Change the MS SQL logical server IP to the new MS SQL server IP in the Control Panel.
- 6 All resellers should reconfigure MS SQL server aliases to use the new IP for the MS SQL server.

Moving MS SQL Databases to a New Location

This document describes how to change the location of the data and log files for any MS SQL database. There are two ways to move MS SQL databases:

Method 1

(preferable)

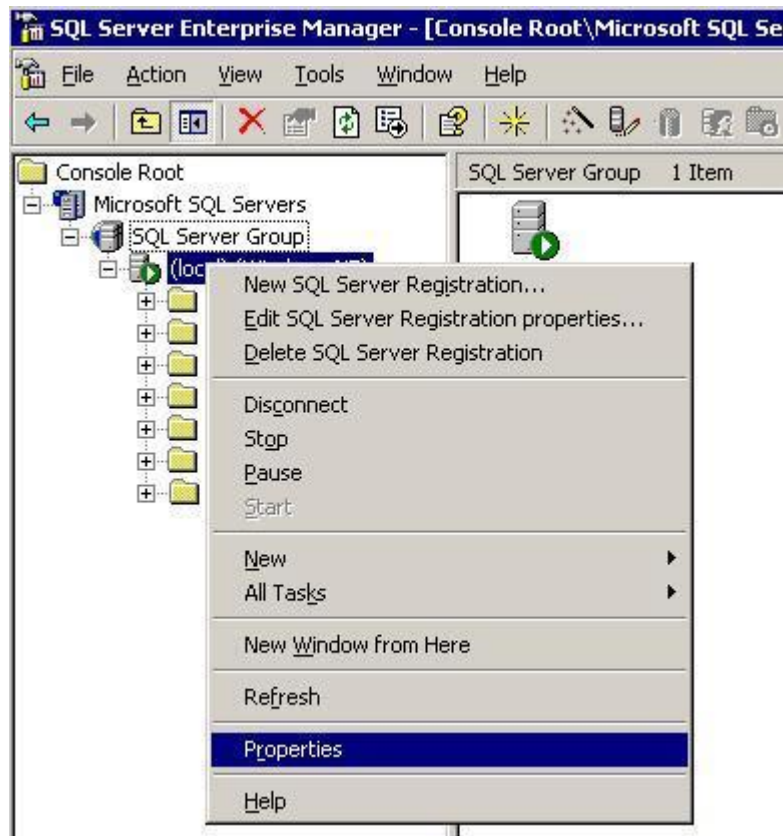
- 1 Create new MS SQL data location (E:\MSSQL\data\)
- 2 Stop MS SQL server
- 3 Move all databases to a new location (move *.mdf and *.ldf files)
- 4 Create junction link between old and new MS SQL data folders. This can be done with Sysinternals Junction (<http://download.hsphere.parallels.com/shiv/WinBox/linkmagic.exe>) or any other utility of this kind
- 5 Start MS SQL server

In case you have some databases with different from default locations:

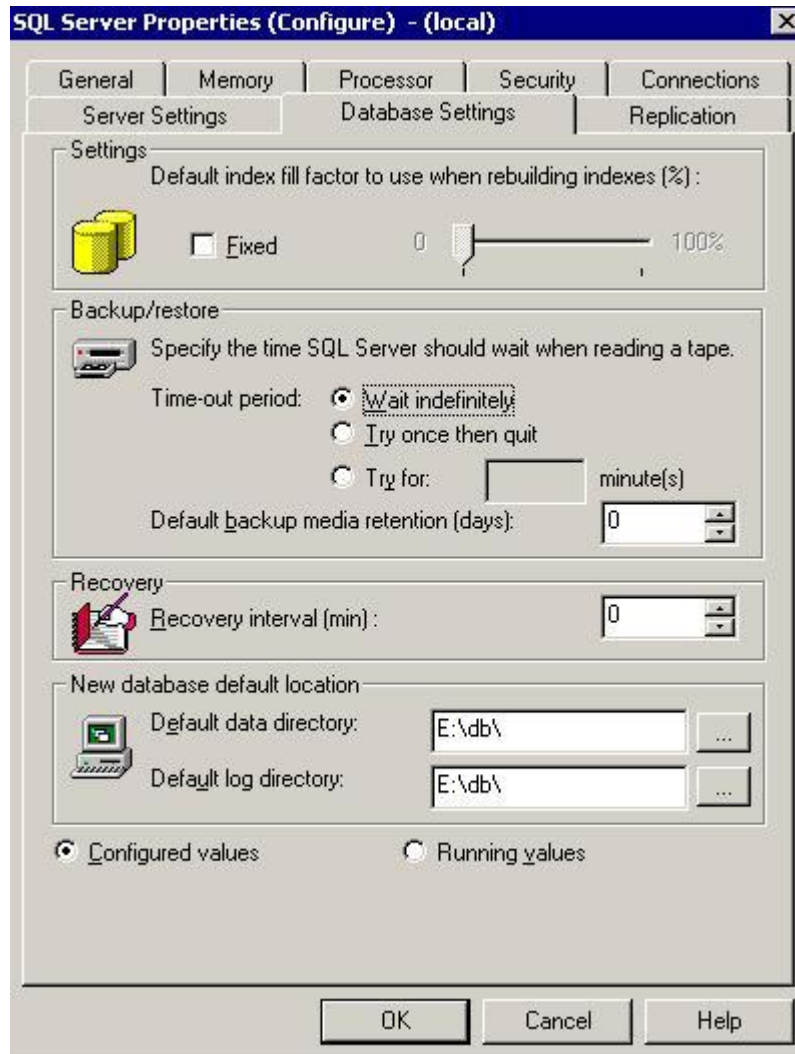
- 1 Detach these databases
- 2 Copy these databases from old location to a new location
- 3 Attach these databases from a new location

Method 2

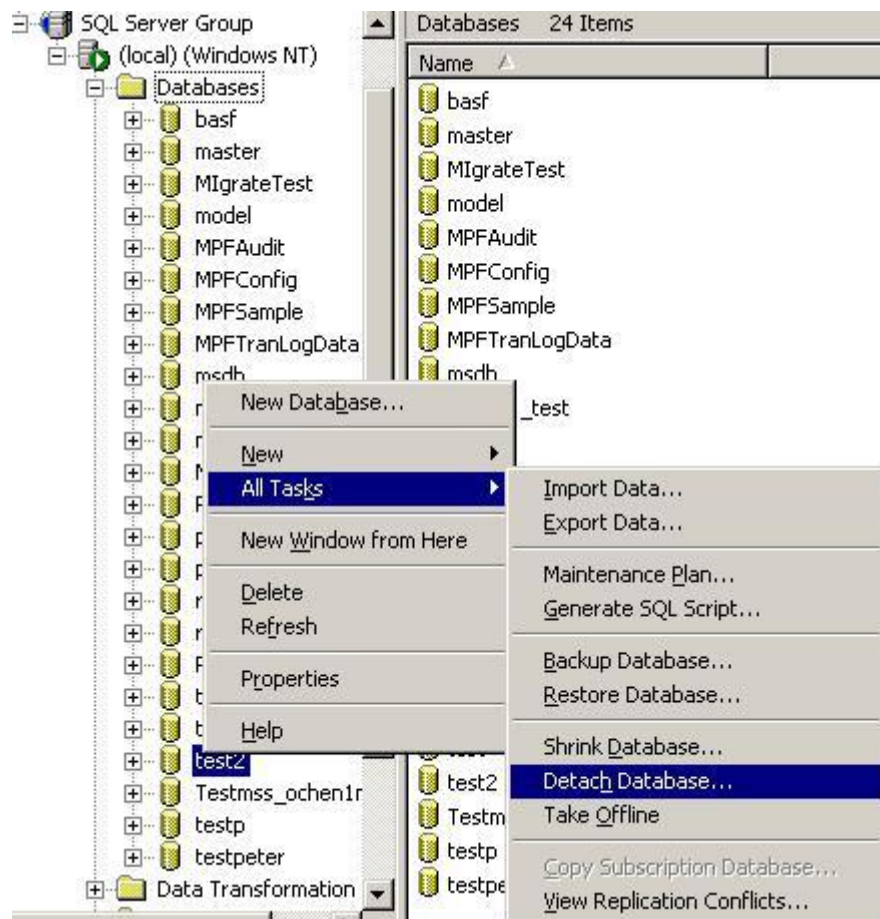
- 1 Go to MS SQL Enterprise Manager
- 2 Choose the MS SQL server **Properties** option. For this, go to **Expand SQL Server Group > MS SQL server <SQL Server_Name>**



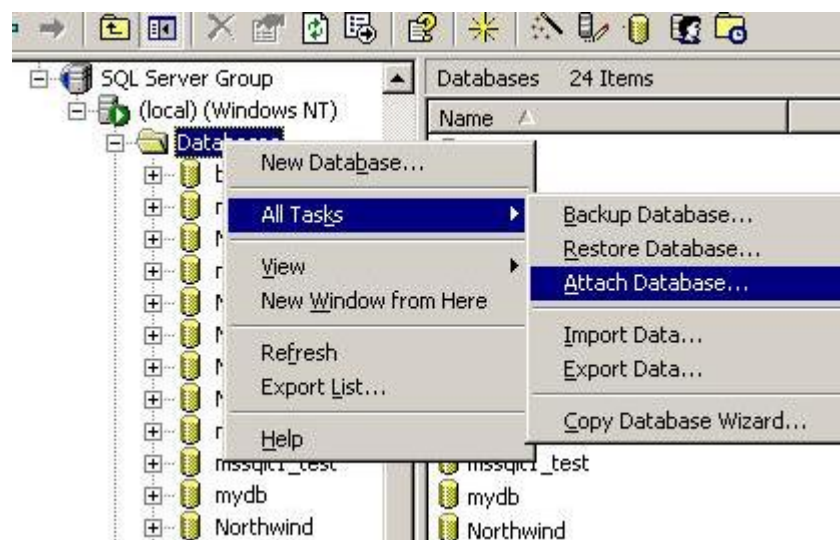
- 3 On the *Database Settings* tab, change *New database location* and set the path to:
 - **Default data directory**, i.e. a new logical disk (E : \MSSQL\DATA\)
 - **Default log directory** (E : \MSSQL\DATA\)



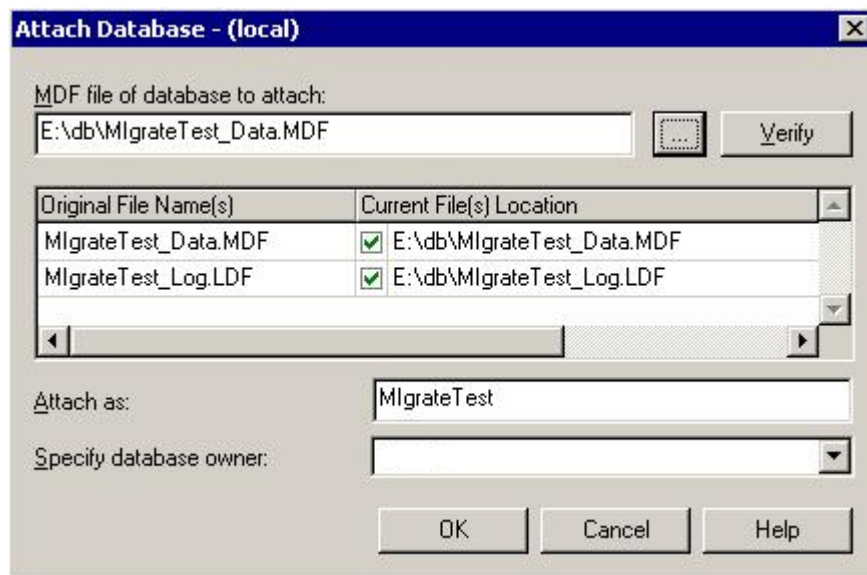
- 4 Create the following folder E : \MSSQL\DATA\
- 5 Set the same NTFS permissions as in the folder [drive] : \Program Files\Microsoft SQL\Server\MSSQL\DATA (the path where DB's are located).
- 6 Go to MS SQL Enterprise Manager > Databases and right click on the **Necessary database** > **All tasks** > **Detach Database** with the option **Update statistics prior detach**. Make sure to check database and database log files locations before detaching a database.



- 7 Go to [drive]:\Program Files\Microsoft SQL Server\MSSQL\DATA and copy Detached DB files (*.mdf and *.ldf) to a new folder E:\MSSQL\DATA\
- 8 Go to MS SQL Enterprise Manager > Databases and right click Databases > Attach Database.



- 9 Put the path to the necessary database (E:\MSSQL\DATA\) and select hsadmin in *Specify database owner* field.



- 10 Repeat steps 6-8 for the rest of databases.

All necessary information can be found in MS SQL documentation (<http://www.microsoft.com/sql/default.mspx>).

Virtual Private Servers

Parallels H-Sphere VPS feature integrates virtual private server hosting into H-Sphere. Install H-Sphere VPS software on a separate physical box and add this box to your H-Sphere cluster. This software is then identified as a logical VPS server and run by a number of packages that may vary depending on your operating system

Once installation is performed and VPS hosting is configured in H-Sphere, users who signup to VPS plans get a virtual server in their use and a user CP interface from which to configure servers. The number of virtual servers per your physical box is limited by the amount of system resources consumed by them and hardware parameters of the VPS host server.

Since Parallels H-Sphere virtual private servers are **logically separate boxes**, their network interfaces must be configured identically to separate boxes in your Parallels H-Sphere cluster. Even though the main server has only one physical network adapter, the kernel emulates separate logical network adapters for each virtual private server. Hence, it is NOT correct to treat VPS IPs as aliases to the main server IP.

Interaction with the main server. Logically separate, the main server and virtual private servers don't communicate with each other directly or interact any differently from regular servers. Virtual private servers don't know anything about their 'parent', they don't even know about their virtual nature!

Configuring IPs. VPS IPs are set up automatically and are registered in the settings of the virtual private servers, not the main server. DON'T configure virtual private server IPs in the main server settings.

Adding or Changing IPs. VPS IPs or netmasks can be added or changed only through the Control Panel. This can't be done by editing the settings of the virtual private servers.

VPS Gateway. Virtual private servers should use the gateway of the main server only if they belong to its subnet. If placed in different subnets, they must be given different gateways.

Configuration Parameters

The default VPS configuration file is `/hsphere/local/config/vserver/vps.cfg`.

WARNING: 1. Do not change location of the configuration file!
2. It is strongly recommended not to make changes to the configuration file manually!

If you need to set parameters to the configuration file, run VPS configuration (on page 322) script `(/hsphere/shared/scripts/vps-configure.pl)`.

See also configuration parameters (on page 344) set in the VPS configuration file.

Template configuration files are located in `$HSINSTALLPKG` (Default: `/hsphere/local/config/vserver/<Your OS code>/`)

where **<Your OS code>**:

RH73 - Red Hat Linux release 7.3

RHES3 - Red Hat Enterprise Linux ES release 3

RHAS3 - Red Hat Enterprise Linux AS release 3

RHWS3 - Red Hat Enterprise Linux WS release 3

WBEL3 - White Box Enterprise Linux release 3

CentOS3 - CentOS release 3

- `rpm_base.cfg` - base and core of Linux
- `rpm_development-tools.cfg` - Development Tools
- `rpm_dns-server.cfg` - DNS Name Server
- `rpm_ftp-server.cfg` - FTP Server
- `rpm_kernel-vps.cfg` - kernel emulator for VPS
- `rpm_mail-server.cfg` - Mail Server
- `rpm_mysql-server.cfg` - MySQL Database
- `rpm_news-server.cfg` - News Server
- `rpm_perl-full.cfg` - Perl programming language modules
- `rpm_pgsql-server.cfg` - Postgresql SQL Database
- `rpm_quota.cfg` - quota tools for VPS
- `rpm_samba-server.cfg` - Windows File Server
- `rpm_system-tools.cfg` - System Tools
- `rpm_web-server.cfg` - Web Server

VPS box configuration files located in `$VPSCONFIGS` (Default: `/hsphere/local/config/vserver/`):

- `vps.cfg` - the main configuration file for all Virtual Private Servers.
- `vps.cfg.bak` - the main configuration file backup.
- `vps.cfg.default` - default configuration for all Virtual Private Servers.
- `vps.list` - the list of all known VPS and the list of Virtual Private Servers scheduled for removal.

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VPS Scripts

Parallels H-Sphere VPS is a set of scripts that serve as the backend for advanced VPS management via Parallels H-Sphere CP but they can also run from the command-line mode. The latter is the subject of this section.

All VPS scripts are located in the `$VPSSCRIPTS` directory (Default: `/hsphere/shared/scripts`).

Cron scripts are located in the `$VPSSCRIPTS/cron` (Default: `/hsphere/shared/scripts/cron`).

In this section:

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Perl Modules Used by VPS Scripts

Note: We provide the hsphere-vps package only for: Red Hat Linux 7.3 with Perl 5.6.1 installed.

Red Hat Enterprise Linux release 3, CentOS 3.x, White Box Enterprise Linux release 3 with Perl 5.8.0 installed.

If you wish to install this package with other versions of Perl, you need to build your own Parallels H-Sphere VPS binaries.

Perl modules:

Red Hat Linux 7.3: Perl v5.6.1 modules are installed in
[/usr/lib/perl5/site_perl/5.6.1/VServer/]

Red Hat Enterprise Linux release 3, CentOS 3.x, White Box Enterprise Linux release 3:
Perl v5.8.0 modules are installed in
[/usr/lib/perl5/site_perl/5.8.0/VServer]

```
Addon.pm
Admin.pm
Net.pm
Util.pm
Vars.pm
Vrpm.pm
```

VPS Configuration

Enter the \$VPSSCRIPTS directory (Default: /hsphere/shared/scripts) to run the vps_configure.pl script.

SYNTAX:

```
./vps-configure.pl [-d|-r|-h]
```

OPTIONS:

--defaults|-d load default settings

--restore|-r restore settings you made before

--help|-h display this help message Run vps_configure.pl:

```
# /hsphere/shared/scripts/vps-configure.pl
Do you really want to reconfigure your VPSs [y/n]?
Kernel: 2.4.21-freevps-1.2-1hugemem
FreeVPS patch build: 1080548030
Base FreeVPS tools package: freevps-tools-1.2-1
Parallels H-Sphere VPS scripts package: hsphere-vps-1.2-1
RedHat release: RH73
```

To perform basic configuration for all virtual servers, run the script and follow the instructions step by step (on page 359).

Create VPS

To create new Virtual Private Server, run the `vps-post-config.pl` script:

```
./vps-post-config.pl VPS_HOST_NAME
```

And put the following parameters to STDIN:

`IP=ADDRESS:MASK:HDEV` - IP to be assigned to this VPS and allowed on network interface HDEV on your VPS box;

`DLIMIT=XXXX` - Disk limit in Mb;

`MLIMIT=XXXX` - Memory Limit in Mb;

`PLIMIT=XXXX` - Limit on the number of running processes;

`FILELIMIT=XXXX` - Number of opened files limit;

`TCPLIMIT=XXXX` - TCP sockets limit;

`ROOTPWD=****` - User root password;

`CTRL+D` - Press Ctrl+d to stop data input.

Example:

Create a VPS with the following configuration:

```
Hostname: 231.tst
```

```
IP address: 192.168.112.231, mask: 255.255.255.0
```

```
Disk limit: 3000Mb
```

```
Memory limit: 512Mb
```

```
Limit on the number of running processes: 1000
```

```
Root password: 1
```

```
[root@vps scripts]# ./vps-post-config.pl 231.tst
```

```
IP=192.168.112.231:255.255.255.0[press Enter]
```

```
DLIMIT=3000[press Enter]
```

```
MLIMIT=512[press Enter]
```

```
PLIMIT=1000[press Enter]
```

```
ROOTPWD=1[press Enter] [press Ctrl+d] (end of data input)
```

`vps-post-config.pl` creates the `$HSVPSFILES/231.tst/231.tst.in` file (Default: `/hsphere/local/config/vserver/cp/231.tst/231.tst.in`) with the input parameters, and registers VPS in the list of known vservers:

`$VPSCONFIGS/vps.list` (Default:

`/hsphere/local/config/vserver/vps.list`)

Check the list of VPSs:

```
[root@vps scripts]# cat /hsphere/local/config/vserver/vps.list
```

You would get something like this:

```
DELETE=""
VSERVERS="3:231.tst"
```

Format:

`DELETE="HOSTNAME1 HOSTNAME2 HOSTNAME3"` - the list of VPSs scheduled for deletion, separated with whitespaces;

`VSERVERS="CONTEXT_ID1:HOSTNAME1 CONTEXT_ID2:HOSTNAME2"` - the list of known VPSs, separated with whitespaces;

`CONTEXT_ID` is a virtual server ID

Migrate VPS

VPS migration is performed by the `vps-migrate.pl` script that moves VPS(s) to another host. This script uses:

- *OpenSSH* client:
 - for secure copying (`scp` remote file copy program)
 - for executing commands on a remote machine
- *tar* archiving utility.

To perform a migration, access to remote servers and logging into them automatically without entering the password each time is required from the "source" box. So, the access keys should be copied from the "source" box into the destination box. If such keys are not uploaded, the script does it for you (use the `--put-ssh-key` option).

Preparation:

- 1 Suspend the VPS server on the "source" box.
- 2 Configure the destination machine to be VPS server host:
 - Install all required packages (FreeVPS kernel, FreeVPS tools, Parallels H-Sphere VPS scripts).
 - Complete all configuration tasks.

Actions performed by the script:

- The remote host VPS servers configuration is loaded and checked
- Platform compatibility is checked for the VPS box and the destination host. For example, a VPS under Enterprise Linux can't be moved to a host under RedHat Linux release 7.3.
- The script checks whether a VPS with the same name as the migrated one exists on the destination box
- Available free disk space on the destination host VPS home partition is checked as `Free_space > VPS_disk_usage*1.5`
- The script checks if the VPS server virtual context number exists on the destination box:

- if the migrated VPS server virtual context does not exist on the destination box, the VPS is created with this context
- if it does exist, the first free virtual context is used for the migrated VPS
- Network interface which all the virtual network interfaces were attached to is checked. If a network interface does not exist on the destination host, new one is used, and the VPS network is reconfigured to be used to assign virtual network interfaces.
- VPS home is archived using the *tar* utility filtered through *gzip*
- MD5SUM for the source file is compared with that of the file copied to the remote host
- VPS traffic data is migrated to the destination box
- Post-migration:
 - configuration quota check) is restored within 3 minutes by the `crpn/vps-cron-fix.pl cron`
 - Migrated VPS is suspended on the destination box, and should be resumed via Parallels H-Sphere or manually.

For help, run:

```
# ./vps-migrate.pl --help
vps-migrate.pl # Moves VPS(s) to another host.
Usage:
vps-migrate.pl --host=<host> [--user=<name>] --vps=v<ps_name>|--all [--
put-ssh-key] [--help]
--host          # <host> - host (DNS name/IP address) to migrate VPS(s)
to.
--user          # <name> - username to be used to log into the host.
                # If username is not specified, the name of the user
executing the script will be taken.
--vps          # <vps_name> - VPS to be migrated.
--all          # Migrate all known VPSs.
--put-ssh-key  # Generate and upload public SSH keys to remote box.
--help        # Print this help information.
```

Delete VPS

vps-delete.pl

SYNTAX:

```
./vps-delete.pl VPS_HOST_NAME
```

- 1 It removes existing VPS [`VPS_HOST_NAME`], all its configuration files, removes [`VPS_HOST_NAME`] from the list of known VPS.
- 2 If [`VPS_HOST_NAME`] is being created by cron at the moment, [`vps-delete.pl`] posts deletion request for VPS (sets the DELETE parameter in the `vps.list` file)
- 3 All deletion requests are processed by `vps-cron-delete.pl` cron every 4 minutes.

VPS Cron Scripts

These are VPS scripts scheduled in cron on the host server:

```
* /5 * * * * /hsphere/shared/scripts/cron/vps-cron.pl >/dev/null 2>&1
59 * /1 * * * * /hsphere/shared/scripts/cron/vps-cron-traf.pl >/dev/null
2>&1
* /4 * * * * /hsphere/shared/scripts/cron/vps-cron-delete.pl >/dev/null
2>&1
* /3 * * * * /hsphere/shared/scripts/cron/vps-cron-fix.pl >/dev/null
2>&1
```

vps-cron.pl

The `$VPSSCRIPTS/cron/vps-cron.pl` script (*Default: /hsphere/shared/scripts/cron/vps-cron.pl*) runs every 5 minutes. It is used to install and configure new Virtual Private Servers.

The script works as follows:

- 1 It checks the list of known vservers and takes each VPS and processes requested tasks from the `$HSVPSFILES/VPS_NAME/VPS_NAME.in` file (*Default: .../cp/VPS_NAME/VPS_NAME.in*).
- 2 If the requested task is successfully done, it creates a note in the `$HSVPSFILES/VPS_NAME/VPS_NAME.out` file (*Default: .../cp/VPS_NAME/VPS_NAME.out*).
- 3 If all of the requested tasks are done, it creates the DONE file: `$HSVPSFILES/VPS_NAME/VPS_NAME.done` (*Default: .../cp/VPS_NAME/VPS_NAME.done*), and deletes the request file: `$HSVPSFILES/VPS_NAME/VPS_NAME.in` (*Default: .../cp/VPS_NAME/VPS_NAME.in*).
- 4 It creates the FLAG file: `$STATCRONPID` (*Default: /var/log/hsphere/vps_cron.pid*) with its own PID, to prevent executing another copy of it.
- 5 It creates all configuration files required for VPSs: `$VPSCONFIGS/VPS_NAME.conf` (*Default: /hsphere/local/config/vserver/VPS_NAME.conf*) `$VPSCONFIGS/VPS_NAME.sh` (*Default: /hsphere/local/config/vserver/VPS_NAME.sh*).
- 6 It installs basic Linux RH7.3 packages and additional packages if configured, creates services, set limits, assigns IPs, and finally, starts VPS.

vps-cron-traf.pl

Processes VPS network traffic statistics. Creates files with VPS daily traffic statistics: `/hsphere/local/var/statistic/DD.MM.YYYY.vps.txt`

vps-cron-delete.pl

This cron script that runs every 4 minutes deletes VPS server(s) scheduled for removing.

VPS server is scheduled for removing if it cannot be deleted immediately after the removing request was sent, e.g. when other tasks need to be finished first.

Names of the VPS servers(s) scheduled for removing are listed delimited with whitespace in the `DELETE` parameter of the `/hisphere/local/config/vserver/vps.list` configuration file.

Example:

```
# cat /hisphere/local/config/vserver/vps.list
DELETE="vps1.psoft vps2.psoft"
VDU=""
VSERVERS="3:230.psoft 4:vps1.psoft 5:test.test 6:vps2.psoft
7:vps4.psoft 8:vps5.psoft 9:vps6.psoft
10:vps3.psoft 11:vps7.psoft 12:vps9.psoft
13:blabla.test.tst 14:vps11.psoft 15:vps12.psoft 16:vps13.psoft 17:vps-
rh73-blank.psoft
18:vps14.psoft 21:newacc.test.tst
22:jumbo.jumbo23:vps200.hs.test 24:vps203.hs.test 25:vps207.hs.test
26:vps212.hs.test 27:myvps.test
28:my-server.test 29:krambambuli.test"
```

vps-cron-fix.pl

This script fixes some VPS(s) configuration: limits, usage, etc.

For instance, it can fix VPS server(s) configuration that was "lost" when you upgraded the FreeVPS kernel after the host system (physical box) reboot.

Fixed parameters:

- VPS server virtual context recreated
- VPS root directory (new root for the created virtual context) set
- VPS server files context fixed
- VPS server inside user/group quotas for all filesystems configured in `/etc/fstab` checked
- VPS disk usage calculated
- all limits restored

The script runs as a cron job and is configured to fix corrupted configuration every 3 minutes. The script also checks and fixes VPS servers(s) daily.

If needed, you can run the script manually. Use `--vps` to fix a particular VPS and `-f` | `-force` to forcefully fix a virtual server(s) even if its(their) configuration is uncorrupted.

IMPORTANT: It is recommended that you stop/suspend VPS server(s) before the fix.

For help, run:

```
# vps-cron-fix.pl --help
vps-cron-fix.pl # Script for checking and fixing VPS(s) configuration:
limits, usage, etc.
                # The script is configured to check (and to fix if
needed) VPS(s) configuration every 3 minutes (run as a cron job).
                # VPS(s) are fixed daily anyway.
Usage:
vps-cron-fix.pl [--vps=<name>|-v <name>] [--force|-f]
-v|--vps        # Fixes particular VPS.
                # If not set - script will fix all known VPS servers.
-f|--force      # Run script by force (even if it was run today
already).
--help          # Print this help information.
```

vps-cron-net-reconfig.pl (VPS Network Reconfiguration Cron)

Location: \$VPSSCRIPTS/cron/vps-cron-net-reconfig.pl (by default
/hisphere/shared/scripts/cron/vps-cron-net-reconfig.pl)

This script runs every 5 minutes as cron to reconfigure virtual servers' network (on page 336). If subnet configuration is changed, it reconfigures all affected virtual servers' configuration. If subnet default gateway or mask is changed, it reconfigures and restarts network for each virtual server. If network interface is changed on a virtual server, it restarts this virtual server.

Usage:

```
vps-cron-net-reconfig.pl [--vps=<name>] [--force]
--vps          # Process particular VPS.
                # If not set - script will process all registered virtual
servers.
--force        # Run script by force --help # Print this help information.
```

Examples:

```
vps-cron-net-reconfig.pl --vps=vps.test --force
# Process VPS server vps.test forcefully, even if the reconfig flag is
not set
vps-cron-net-reconfig.pl --vps=vps.test
# Process VPS server vps.test if the reconfig flag is set
vps-cron-net-reconfig.pl --force
# Process all registered virtual servers, even if reconfigure flag is
not set
vps-cron-net-reconfig.pl
# Process all registered VPS server(s) if the reconfig flag is set
```


VPS Configuration Scripts

`./vps-addip.pl VPS_HOST_NAME IP:MASK`

Assigns new IP address to the `VPS_HOST_NAME` virtual server.

`./vps-rmip.pl VPS_HOST_NAME IP[:MASK]`

Removes IP from `VPS_HOST_NAME`.

`./vps-dlimit-set VPS_HOST_NAME DISK_LIMIT_VALUE`

Sets disk usage limit for `VPS_HOST_NAME` to `DISK_LIMIT_VALUE`, in Mb.

`./vps-dlimit-get VPS_HOST_NAME`

Returns disk limit and disk usage for `VPS_HOST_NAME`.

`./vps-mlimit-set VPS_HOST_NAME MEMORY_LIMIT_VALUE`

Sets memory limit for the `VPS_HOST_NAME` server to `MEMORY_LIMIT_VALUE`, in Mb

`./vps-mlimit-get VPS_HOST_NAME`

Returns memory limit and memory usage for `VPS_HOST_NAME`

`./vps-plimit-set VPS_HOST_NAME PROCESS_LIMIT_VALUE`

Sets limit on the number of processes running on `VPS_HOST_NAME` to `PROCESS_LIMIT_VALUE`, in Mb

`./vps-plimit-get VPS_HOST_NAME`

Returns the limit on and the number of processes running on `VPS_HOST_NAME`

`./vps-flimit-get VPS_HOST_NAME`

Returns file handlers limit, and the number of opened at this moment files
`VPS_HOST_NAME`

`./vps-flimit-set VPS_HOST_NAME`

Sets file handlers limit for `VPS_HOST_NAME`

./vps-tcplimit-get VPS_HOST_NAME

Returns the limit on socket connections and the number of established connections for VPS `VPS_HOST_NAME`

./vps-tcplimit-set VPS_HOST_NAME

Sets limit for established socket connections for VPS `VPS_HOST_NAME`

./vps-dev-speed.pl

Tools to get|set the speed of virtual network interface.

Note: Virtual network interface speed must be divisible by 64000.

Usage:

```
vps-eth-speed.pl VPS_NAME [--dev=<device>|-d <device>] --get|--set
<SPEED>
```

For more information, please run: `vps-dev-speed.pl --help`

./vps-dev-speed-set VPS_NAME [--dev=<device>|-d <device>] <SPEED>

Sets work speed to `<SPEED>` Kb/sec for virtual network interface `<device>` on Virtual Private Server `VPS_NAME`

Note: Virtual network interface speed (`<SPEED>` value) must be divisible by 64000.

If `--dev=<device>|-d <device>` option not specified, `<SPEED>` value will be set to all registered virtual network interfaces on VPS `VPS_NAME`

./vps-dev-speed-get VPS_NAME [--dev=<device>|-d <device>]

Returns work speed for virtual network interface `<device>` on Virtual Private Server `VPS_NAME`

Note: If `--dev=<device>|-d <device>` option not specified, returns speed for all virtual network interfaces registered on VPS `VPS_NAME`, in the following format:

```
VDEV0 SPEED0
VDEV1 SPEED1
...
```

./vps-start.pl [VPS_HOST_NAME | [-a|--all]]

Turns on `VPS_HOST_NAME`, or all known stopped VPS servers if the `-a|--all` option is specified.

./vps-stop.pl [VPS_HOST_NAME | [-a|--all]]

Turns off `VPS_HOST_NAME`, or all known running VPS servers if the `-a|--all` option is specified.

./vps-suspend.pl [VPS_HOST_NAME | [-a|--all]]

Suspends (turns off and sets `ONBOOT=no`) vserver `[VPS_HOST_NAME]`, or all known VPS servers if the `-a|--all` option is specified.

./vps-resume.pl [VPS_HOST_NAME | [-a|--all]]

Resumes (turns on and sets `ONBOOT=yes`) vserver `[VPS_HOST_NAME]`, or all known VPS servers if the `-a|--all` option is specified.

./vps-rootpwd.pl VPS_HOST_NAME

To set new password for user root, send it to STDIN.

./vps-du.pl

Returns disk usage for all known VPSs on the host server in the format required by Parallels H-Sphere Control Panel.

./vps-get-config.pl VPS_HOST_NAME

Returns all VPS configuration parameters in the format required by Parallels H-Sphere Control Panel.

View List of Installed VPS's

The `./vps-list.pl` script returns brief information about all VPS installed on the host server, installed VPS packages, values of configuration variables.

Example:

```
# ./vps-list.pl
Kernel release: 2.4.21-freevps-1.3-22smp
FreeVPS kernel patch build: 0 [19691231]
FreeVPS tools release: 1.3-9
Parallels H-Sphere VPS release: 1.3-6.4 [20050426]
Linux release: CentOS release 3.3 (final) [CentOS3]
Free disk space on VPS home [/home/hsphere/local/vservers]: 9346 Mb
Virtual Private Servers found on the host:
-----
ID NAME STATUS VDEV:HDEV:IP/MASK+|- (UP|DOWN) DISK (Mb) MEMORY (Mb) SWAP
PROCESSES CPU (%) TRAFFIC
----- (Mb) -----
-----s--h--used----- (Mb)
  5 vps1.psoft run. eth0:eth0:10.0.0.2/24- 0 1707.6 0 0.8 0.5 0 5 0 0 0
0.0
  6 vps2.psoft run. eth0:eth0:160.79.224.138/24+ 0 425.0 0 2.2 1.4 0 8 0
0 0 0.0
-----
Display all settings for VPSs on this host [y/n]?
```

Install/Uninstall Additional Packages

To install an additional template or package into completely created virtual server use `vps-pkg-inst.pl` script.

Run `# ./vps-pkg-inst.pl --help` to get help on the script options:

```
vps-pkg-inst.pl
# Install template or single package into Virtual Private
Server(s)
Usage:
vps-pkg-inst.pl --vps=<vps name>|--all --
package=<package_name>|--template=<template> [--help]
--vps # <vps_name> - VPS server name to install
package/template
--all # install package/template into all registered and
completely created VPS servers
--package # <package_name> - RPM package file to be installed
full path and name
--template # <template> - template to be installed name.
# rpm_<template>.cfg template configuration file
must be located in corresponding operating system VPS
configuration directory
# All RPM packages included in rpm <template>.cfg
file must be located in corresponding operating system
distributive packages directory
--help # Print this help information.
Example:
```

```

vps-pkg-inst.pl --vps=vps.test --template=web-server
# Install web-server template packages into VPS server named vps.test
vps-pkg-inst.pl --all --template=system-tools
# Install system-tools template packages into all registered on the
host VPS servers
vps-pkg-inst.pl --vps=vps.test --package=/pub/RedHat/RHES3/vim-
enhanced-6.2.98-1.i386.rpm
# Install vim-enhanced-6.2.98-1 package into VPS server named vps.test

```

During template installation the script tries to start default (corresponding to installing template/package) services. Any other service should be started manually from inside of the VPS. No services configuration is performed during the template/package installation. Please read more about virtual server template creation and management in the [Parallels H-Sphere VPS Templates](#) (on page 348).

To uninstall any template or package installed inside virtual server, use `vps-pkg-remove.pl` script

Run # `./vps-pkg-remove.pl --help` to get help on the script options:

```

vps-pkg-remove.pl # Uninstall template or single package from Virtual
Private Server(s)
Usage:
vps-pkg-remove.pl --vps=<vps_name>|--all --package=<package_name>|--
template=<template> [--help]
--vps # <vps_name> - VPS server name to uninstall package/template
--all # uninstall package/template from all registered and completely
created VPS servers
--package # <package_name> - RPM package to be uninstalled name
--template # <template> - template to be uninstalled name.
           # rpm <template>.cfg template configuration file must be
located in corresponding operating system VPS configuration directory
--help   # Print this help information.
Example:
vps-pkg-remove.pl --vps=vps.test --template=web-server
           # Uninstall web-server template packages from VPS server named
vps.test
vps-pkg-remove.pl --all --template=system-tools
           # Uninstall system-tools template packages from all registered on the
host VPS servers
vps-pkg-remove.pl --vps=vps.test --package=vim-enhanced-6.2.98-1
           # Uninstall vim-enhanced-6.2.98-1 package from VPS server named
vps.test

```

Be carefull when packages are removed. We do not provide any back-ups to enable services (corresponding to a template/package removal) configuration restore. If any of the packages (single or included into the removed template) required by any other template installed , the package will be not removed.

Check VPS Files for Changes

This action is performed by the `vps-files-md5-check.pl` script. It compares info of the package installed files with that of the package metadata stored in the rpm database. Parameters compared are size, MD5 sum, permissions, type, owner, and group of each file.

The `--verify` option of the RPM Package Manager is used. For reference, please turn to the rpm manual.

Example of usage: Say, the file info has been changed as a result of the box hacking. The script checks the file inside VPS for changes and proposes to copy this file from the host system.

WARNING: We strongly recommend not to overwrite non-binary files, e.g. configs. This may cause the system malfunction.

Before copying, find out which files have been changed by running the script with the listing options.

For help info, run:

```
# vps-files-md5-check.pl --help
vps-files-md5-check.pl # Check installed files information for changes.
Usage:
vps-files-md5-check.pl --vps=<vps_name>|--root=<directory> [--list|--list-all [--detailed]] [--copy-all]
--vps # <vps_name> - VPS name to check.
--root # <directory> - new root directory to check (packages must be installed with the --root option).
--list # List changed files.
--list-all # List all changed files (config, license, readme, doc, ghost file, etc.).
--detailed # Show file changes.
--copy-all # Do not ask to copy modified file from the host.
--help #Print this help information.
```

Example:

```
# ./vps-files-md5-check.pl --vps=vps4.psoft --list-all --detailed
S.5....T c /etc/pam.d/system-auth
%config configuration file.
file Size differs
MD5 sum differs
mTime differs
.....T c /etc/inittab
%config configuration file.
mTime differs
.....T c /etc/mail/sendmail.cf
%config configuration file.
mTime differs
.....T c /etc/krb5.conf
%config configuration file.
mTime differs
S.5....T c /etc/sysconfig/rhn/up2date-uuid
%config configuration file.
file Size differs
MD5 sum differs
```

```
mTime differs
```

In the above example, there are no files to overwrite because all of them are %config configuration files.

In the next example we are changing /bin/true binary:

```
# ./vps-files-md5-check.pl --vps=vps4.psoft --list-all --detailed
<...>
..5....T /bin/true
MD5 sum differs
mTime differs
<...>
```

The script shows that MD5 sum for rpm database differs from that of the binary file. To copy the file from the host, run:

```
# ./vps-files-md5-check.pl --vps=vps4.psoft
Would you like to copy /bin/true from the host [y/n]? y
```

VPS IP Migration Tool

vps-ip-migrate.pl is used to change virtual servers' IP addresses (in other words, IP migration).

For help, run:

```
# ./vps-ip-migrate.pl --help
vps-ip-migrate.pl # VPS server IP migration script.
Usage:
vps-ip-migrate.pl --vps=<vps_name>|--all --xml=<xml_ip_map> [--help]
--vps # <vps_name> - VPS server name to perform IP migration
--all # perform IP migration for all registered VPS servers
--xml # <xml_ip_map> - XML structured IP map migration file
--help # Print this help information.
```

Example:

```
vps-ip-migrate.pl --vps=vps.test --xml=ip_map.xml
# Perform IP migration for vps.test according to the ip_map.xml IP map
file
vps-ip-migrate.pl --all --xml=ip_map.xml
# Perform IP migration for all registered in the host VPS servers
according to the ip_map.xml IP map
file
```

Options:

- --all - when it's used, IPs will be changed for all Virtual Servers registered in the host (physical machine)
- --vps=<vps_name> - used for IP change/migration on a single <vps_name> VPS
- --xml=<xml_ip_map> - full name of structured IP migration map xml file (on page 43)

When calling the script, it's mandatory to use --all or --vps option.

IMPORTANT! This script does not make any changes to Parallels H-Sphere cluster. It physically changes IP(s) created ONLY inside VPS server(s).
Read on IP migration (changing IPs) for the Parallels H-Sphere cluster (on page 40).

VPS Network Configuration Tools

Parallels H-Sphere VPS 1.4-1 provides adding multiple subnets and network gateways (on page 342) to virtual servers. The following scripts located in the `$VPSSCRIPTS/` (`/hsphere/shared/scripts/` by default) are responsible for managing VPS subnets:

- `vps-subnets-add.pl` - add new subnet to network gateways (subnets configuration file);
- `vps-subnets-change.pl` - change existing subnet configuration;
- `vps-subnets-del.pl` - remove configuration for particular subnet;
- `vps-subnets-list.pl` - print subnet configuration;
- `vps-subnets-xml-get.pl` - print XML structured subnet configuration;
- `vps-subnets-xml-put.pl` - save XML structured subnet configuration;

Run these scripts with the `--help` option for detailed usage info.

These scripts work with the subnet configuration XML file (on page 343).

vps-subnets-add.pl

Configures subnet (IP addresses to be assigned to newly created VPS servers) with gateway, IP mask and network interface. Please turn to your data center system administrators for subnet configuration information.

Usage:

```
vps-subnets-add.pl --addr=<addr> --device=<device> --gateway=<gateway>  
--mask=<mask> [--help]  
--addr # <addr> - subnet address --device # <device> - Linux style name  
of the network interface to which subnet IPs will be assigned.  
# For example eth0 (eth1, ...)  
# To list available interfaces run: net-iface-list.pl  
--gateway # <gateway> - gateway to be used by IPs from this subnet  
--mask # <mask> - IPs mask  
--help # Print this help information.
```

Example:

```
vps-subnets-add.pl --addr 192.168.112.0 --device eth1 --gateway  
192.168.112.1 --mask 255.255.255.0
```

Configures all 192.168.112.x IPs (subnet 192.168.112.0) to be assigned to network interface eth1 with gateway 192.168.112.1 and mask 255.255.255.0

vps-subnets-change.pl

Changes subnet configuration, such as, gateway or/and IP mask and/or network interface.

Usage:

```
vps-subnets-change.pl --addr=<addr> --device=<device>|--  
gateway=<gateway>|--mask=<mask> [--help]  
--addr      # <addr> - subnet network address whose configuration is to  
be changed  
--device    # <device> - Linux style name of the new network interface to  
which subnet IPs will be assigned.  
              # For example eth0 (eth1, ...)  
--gateway   # <gateway> - new gateway to be used by IPs from this subnet  
--mask      # <mask> - new IP mask --help # Print this help information.
```

Example:

```
vps-subnets-change.pl --addr 192.168.112.0 --device eth2
```

Configures all 192.168.112.x IPs (subnet 192.168.112.0) to be assigned to new network interface eth2 (use old gateway and mask)

vps-subnets-del.pl

Deletes subnet configuration according to the XML config file (on page 343).

Usage:

```
vps-subnets-del.pl <addr> [--help]  
      # <addr> - subnet address whose configuration is to be  
removed  
--help # Print this help information.
```

Example:

```
vps-subnets-del.pl 192.168.112.0
```

Removes 192.168.112.0 subnet configuration.

vps-subnets-list.pl

Prints VPS subnet configuration from the XML config file (on page 343).

Usage:

```
vps-subnets-list.pl [--help|-h]  
--help # Print this help information.
```

vps-subnets-xml-put.pl

Stores virtual servers' subnet configuration into the XML config file (on page 343).

Usage:

```
vps-subnets-xml-put.pl [--help|-h]  
--help # Print this help information.
```

Device Management

Global and per virtual context device management is available in command-line mode starting with `kernel-freevps-1.5-6` and `freevps-tools-1.4-3`.

Low level management is provided with `vaccess` tool that comes in FreeVPS tools package. To get more info on the `vaccess` tool, run:

```
# man vaccess
```

Virtual device management isn't yet available in Parallels H-Sphere control panel interface.

Global VPS Device Management

Global VPS device management is realized through two scripts: `vps-dev-global-add.pl` and `vps-dev-global-del.pl`.

By default only these *character* devices required for basic virtual servers functionality are enabled:

1.3, 1.5, 1.7, 1.8, 1.9, 5.0, 5.2, 136.all, 200.all (null, zero, full, random, urandom, tty, ptmx, tun)

Block devices are not enabled by default and if needed, must be enabled additionally.

To check what devices are enabled on your host virtual servers, run the following command:

- character devices:

```
# vsverctl --ctx 1 --exec cat /proc/vservers/access/chardev
```

- block devices:

```
# vsverctl --ctx 1 --exec cat
/proc/vservers/access/blockdev
```

vps-dev-global-add.pl

Enables device for all virtual servers and has the following syntax:

```
# ./vps-dev-global-add.pl --help
vps-dev-global-add.pl # Enables device globally (for all virtual
servers)
Usage:
vps-dev-global-add.pl --dev=<dev_name>|(--ftype=<file_type> --
dtype=<device_type>) [--help]
--dev # <dev_name> - device name
--ftype # <file_type> - device file type:
# c - a character special file
# b - a block special file
--dtype # <device_type> - device type in the MAJOR.MINOR format
# for example: 1.3
--help # Print this help information.
```

Example:

```
vps-dev-global-add.pl --dev="tun"
# Enable /dev/tun for all virtual servers
vps-dev-global-add.pl --ftype=c --dtype="10.200"
# Enable character device type 10.200 (/dev/tun) for all virtual
servers
```

vps-dev-global-del.pl

Disables device globally for all registered virtual servers and its syntax is the same as for script `vps-dev-global-add.pl`

To get more info on the script, run:

```
# ./vps-dev-global-del.pl --help
```

Per Virtual Server Device Management

Per virtual server device management is realized through two scripts: `vps-dev-add.pl` and `vps-dev-del.pl`.

You can check devices enabled for individual virtual context by the following command:

- character devices:

```
# vserver_ctl --ctx 1 --exec cat /proc/vservers/<ID> | grep
Char
```

- block devices:

```
# vserver_ctl --ctx 1 --exec cat /proc/vservers/<ID> | grep
Block
```

where, `<ID>` is a virtual context ID, for example 3, 4, etc.

Parallels H-Sphere VPS device management tools enable usage of virtual servers names instead of virtual contexts IDs.

vps-dev-add.pl

Enables individual device for all virtual servers and has the following syntax:

```
vps-dev-add.pl --vps=<vps_name>--dev=<dev_name>|(--ftype=<file_type>--dtype=<device_type>) [--help]
```

where `--vps # <vps_name>` is a virtual server name and other parameters are the same as for `vps-dev-global-add.pl`.

For example:

`vps-dev-add.pl --vps=vps.tst --dev="tun"` will enable `/dev/tun` for virtual server `vps.tst`;

`vps-dev-add.pl --vps=vps.tst --ftype=c --dtype="10.200"` will enable character device type 10.200 (`/dev/tun`) for virtual server `vps.tst`

To get more info on the script, run:

```
# ./vps-dev-add.pl --help
```

`vps-dev-del.pl`

Disables device for virtual server and its syntax is the same as for script `vps-dev-add.pl`

To get more info on the script, run:

```
# ./vps-dev-del.pl --help
```

For example:

`vps-dev-del.pl --vps=vps.tst --dev="tun"` will disable `/dev/tun` for virtual server `vps.tst`; `vps-dev-del.pl --ftype=c --dtype="10.200"` will disable character device of the 10.200 type (which is `/dev/tun`) for virtual server `vps.tst`.

To get more info on the script, run:

```
# ./vps-dev-del.pl --help
```

Backing Up VPS Content

The document describes the structure of files and directories to back up on Parallels H-Sphere VPS server.

Parallels H-Sphere backup script (on page 432) is not provided for backing up Parallels H-Sphere VPS server, which is a standalone server installed separately from Parallels H-Sphere. You need to back up Parallels H-Sphere VPS content manually or write your own backup script.

Back up the following files and directories on the VPS host server:

- 1 **The VPS host configuration file.** It is common to all virtual servers:

```
/hsphere/local/config/vserver/vps.cfg
```

- 2 **The file with the list of virtual servers.** To find out its pathname, run under root:

```
cat /hsphere/local/config/vserver/vps.cfg | grep VPSSLIST
```

By default, it is:

```
VPSSLIST=/hsphere/local/config/vserver/vps.list
```

- 3 **FreeVPS configuration files (*.config) for each virtual server.** They are located in the `VPSCONFIGS` directory:

```
# cat /hsphere/local/config/vserver/vps.cfg | grep VPSCONFIGS
```

By default, the `VPSCONFIGS` directory is:

```
VPSCONFIGS=/hsphere/local/config/vserver
```

So, by default, FreeVPS configuration files will be
`/hsphere/local/config/vserver/*.config`

- 1 **Parallels H-Sphere VPS configuration files** (Parallels H-Sphere related configuration). They are located in the `HSVPSFILES` directory:

```
# cat /hsphere/local/config/vserver/vps.cfg | grep HSVPSFILES
```

By default, the `HSVPSFILES` directory is:

```
HSVPSFILES=/hsphere/local/config/vserver/cp
```

Note: We recommend backing up Parallels H-Sphere VPS configuration files separately for each virtual server.

- 2 **Virtual servers' content.** Virtual servers are located in the `VPSHOME` directory:

```
# cat /hsphere/local/config/vserver/vps.cfg | grep VPSHOME
```

By default, the `VPSHOME` directory is:

```
VPSHOME=/hsphere/local/vservers
```

Note: We recommend backing up each virtual server content separately.

- 3 VPS templates (on page 348) for each supported operating system.** They are located in the `VPSCONFIGS/OS_TYPE` directories, where `OS_TYPE` is:
- RH73 for Red Hat 7.3;
 - RHAS3 for Red Hat AS 3;
 - RHES3 for Red Hat ES 3;
 - RHWS3 for Red Hat WS 3;
 - WBEL3 for White Box EL 3;
 - CentOS3 for CentOS 3.x

Adding VPS Network Gateways

Parallels H-Sphere provides adding multiple subnets and network gateways to virtual servers via administrator control panel.

➤ ***To configure network gateways:***

- 1** Select **E.Manager -> VPS Network Gateways**.
- 2** Click the **Add** button to **Add new Network Gateway**.
- 3** In the **VPS Boxes** section Click **Show Assigned Devices** for the server you want to edit.
- 4** On the page that appears, click **Assign Device** for the subnet you are adding.
- 5** Select the network device to associate the subnet with.
- 6** Click **Submit Query**.

In this section:

VPS Subnet XML Configuration 343

VPS Subnet XML Configuration

Parallels H-Sphere provides adding multiple subnets and network gateways (on page 342) to virtual servers. The respective VPS network scripts (on page 336) configure VPS subnet addresses, gateways, masks and physical network interfaces by means of the special XML file `/hsphere/local/config/vserver/subnets.xml` which looks like:

```
<?xml version='1.0' standalone='yes'?>
<subnets>
<subnet addr="192.168.112.0"
device="eth1"
gateway="192.168.112.1"
mask="255.255.255.0" />
<subnet addr="192.168.114.0"
device="eth0"
gateway="192.168.114.1"
mask="255.255.255.0" />
<subnet addr="192.168.116.0"
device="eth1"
gateway="192.168.116.1"
mask="255.255.255.0" />
</subnets>
```

Parallels H-Sphere VPS Configuration Parameters

The default VPS configuration file is `/hsphere/local/config/vserver/vps.cfg`.

Below is a sample config file. To change these parameters interactively, run the configuration script and follow the instructions step by step. (on page 359)

WARNING: 1. Do not change location of the configuration file!
2. It is strongly recommended not to make changes to the configuration file manually!

```
# (c) 2004 Positive Software Corporation
#
# Distributed only with Parallels H-Sphere
#
#
# http://www.psoft.net
#
#####
#####
#####
#####
# Default configuration file for
#
# creation and management of Virtual Private Servers.
#
# It is strongly recommended that you do not make any changes to this
file manually. #
# Run [# /hsphere/shared/scripts/vps-configure.pl]
#
# and perform step-by-step configuration for your virtual
servers. #
#####
#####
# System parameters
# Linux release
LINUXCODE=undef
# FreeVPS kernel patch BUILD
BUILD=0000000001
# Virtual Servers network configuration
# Set the ONBOOT option to 'no' to disable virtual servers at boot time
ONBOOT=yes
# Boot-time protocol
BOOTPROTO=static
# You can set various capabilities. By default, the vservers are run
# with a limited set. In some cases
# you can to give a little more capabilities (such as CAP_NET_RAW,
CAP_NET_ADMIN)
S_CAPS="CAP_NET_RAW CAP_NET_ADMIN CAP_SYS_RESOURCE"
# Default gateway for virtual servers
```



```

GATEWAY=0.0.0.0
# Name server(s) IP addresses:
NAMESERVER=""
# Ethernet network device use to setup IP(s) to be assigned to the VPS.
# This is generally eth0.
# IP(s) will be configured when you start the VPS and un-configure when
you stop it.
IPROOTDEV=eth0
# Set VDEVALIAS to 'yes' to enable virtual ethernet devices aliases.
# Using virtual ethernet devices aliases allow you configure up to 16
different device aliases
# (with IP address assigned)
# per each virtual ethernet device (maximum 16 different virtual
ethernet devices can be created in VPS).
# So, using aliasing, you can assign up to 16x16 IP address to one VPS.
VDEVALIAS=no
# Max number of virtual ethernet devices per virtual context
MAXVDEVS=15
# Max number of virtual ethernet device aliases per each virtual
ethernet device at current virtual context
# Required when device aliasing used (option VDEVALIAS=yes) only.
MAXVDEVALIASES=15
# Virtual device on which IP alias will work.
# Not urgent in this version of VPS.
VIPROOTDEV=eth0
# Vinterface controlling flags
VDEVFLAGS="local"
#
#                               Virtual Servers creating options
# Below is the list of default services initialized at virtual servers'
boot time
START_SERVICES="anacron atd crond kdcrotate network random rawdevices
sshd syslog xinetd vpsinit netfs
portmap gpm identd ipchains iptables nsd sendmail ypbind"
# Set ADDITIONAL to 'yes' if you want to install ADDITIONAL_PACKAGES
# and ADDITIONAL_SERVICES to be set up to start at virtual servers'
boot time
ADDITIONAL=no
# Additional packages available for installation on VPS
ADDITIONAL_PACKAGES_AVAILABLE="gcc samba http sendmail php mysql
postgresql mc up2date"
# Additional packages to be installed for VPS
ADDITIONAL_PACKAGES=""
# Additional services available for setup
ADDITIONAL_SERVICES_AVAILABLE="httpd sendmail mysqld postgresql rhnsd
winbind"
# Additional services to be set up
ADDITIONAL_SERVICES=""
# Set CHECKRPM to 'yes' if you want all packages required to build VPS
be checked.
CHECKRPM=no
#
#                               VPS log options
# Path to the log file for VPS control scripts
LOGFILE=/var/log/hsphere/vps.log
# Log file max size in Mb LOGFILESIZE=1
# Number of log files stored.
LOGFILENUM=7
# Log detailization. Available detailizations: INFO CRON WARN ERROR
FATAL TEST
# List of available types enclosed in brackets.
LOGDETAILS="INFO CRON WARN ERROR FATAL TEST syst open"

```

```

#                                     VPS related files
#Virtual Private Server HSpere scripts package version file
HSVPS_VERSION_FILE=/hsphere/local/config/vserver/HSVPS_VERSION
# Path to the file which consists the list of known VPSs,
# and list of VPSs scheduled for deletion.
VPSLIST=/hsphere/local/config/vserver/vps.list
# File where PID of running VPSs-creating script (vps-cran.pl) is
stored
CRONPID=/var/log/hsphere/vps_cron.pid
# File where PID of running VPSs-traffic script (vps-cran-traf.pl) is
stored
STATCRONPID=/var/log/hsphere/stat_vps_cron.pid
#                                     VPS working directories
# Virtual Private Server libraries
USR_LIB_VSERVER=/usr/lib/vserver
# Path to the files with RPM lists (rpm_base.cfg) required for basic
Linux RedHat installation
RPMBASE=/hsphere/local/config/vserver
# Path to Linux RedHat packages (RPMS)
LINUXRPMS=/home/RedHat/7.3/RedHat/RPMS
# Path to VPS config files
VPSCONFIGS=/hsphere/local/config/vserver
# ROOT directory for all VPS servers.
VPSHOME=/hsphere/local/vservers
# Path to Parallels H-Sphere Control Panel configuration files for VPS
HSVPSFILES=/hsphere/local/config/vserver/cp
# Path where all Parallels H-Sphere VPS scripts are located
VPSSCRIPTS=/hsphere/shared/scripts
# Path where VPS statistics is stored (e.g., VPS traffic)
STATISTICFILES=/hsphere/local/var/statistic
# Path to VPS statistics files loaded to Control Panel
STATISTICLOADED=/hsphere/local/var/statistic/loaded
# Path to packages required by Parallels H-Sphere
HSINSTALLPKG=/hsphere/install/pkg
# Public key file to verify RPM packages built and signed by Red Hat,
Inc.
RPM_GPG_KEY=/usr/share/doc/redhat-release-7.3/RPM-GPG-KEY
#                                     Additional PATHs
# Binary directory SBIN=/sbin
# Users' binary directory
USR_SBIN=/usr/sbin
#                                     Vserver related programs
# Main 'vserver' script
VSERVER_CMD=/usr/sbin/vserver
# 'vserver_ctl' program
VSERVER_CTL=/usr/sbin/vserver_ctl
# 'vserver_limit' program
VSERVER_LIMIT=/usr/sbin/vserver_limit
# 'chcontext' program
CHCONTEXT_CMD=/usr/sbin/chcontext
# 'chroot' program
CHROOT=/usr/sbin/chroot
# 'vdu' program VDU=/usr/sbin/vdu
# 'setattrib' program
SETATTRIB=/usr/sbin/setattrib
# 'vifconfig' program
VIFCONFIG=/usr/sbin/vifconfig
# 'ifconfig' program
IFCONFIG=/sbin/ifconfig
# 'chkconfig' program

```

```

CHKCONFIG=/sbin/chkconfig
#
# Additional programs and paths
#cat- concatenate files and print on the standard output program
CAT=/bin/cat
#grep - print lines matching a pattern program GREP=/bin/grep
#awk - pattern scanning and processing language
AWK=/bin/awk
#head - output the first part of files
HEAD=/usr/bin/head
# Print system information program
UNAME=/bin/uname
# usermod - Modify a user account
USERMOD=/usr/sbin/usermod
# ps - report process status
PS=/bin/ps
# rpm - RPM Package Manager
RPM=/bin/rpm
# df - report filesystem disk space usage
DF=/bin/df
# mknod - make block or character special files
MKNOD=/bin/mknod
# touch - change file timestamps
TOUCH=/bin/touch
# mount - mount a file system
MOUNT=/bin/mount
# umount - unmount file systems
UMOUNT=/bin/umount
# crontab - maintain crontab files for individual users (V3)
CRONTAB=/usr/bin/crontab
# ln - make links between files
LN=/bin/ln
# quotacheck - scan a filesystem for disk usage, create, check and
repair quota files
QUOTACHECK=/sbin/quotacheck
# utility for download files from the Web
WGET=/usr/bin/wget
# list directory contents utility
LS=/bin/ls
# sed - a Stream Editor SED=/bin/sed
# route - show / manipulate the IP routing table
ROUTE=/sbin/route
# Path where gzip is placed
GZIPPATH=/bin/gzip
# sleep - delay for a specified amount of time
SLEEP=/bin/sleep
# gpg - encryption and signing tool
GPG=/usr/bin/gpg
#
# Some URLs
# URL to Linux RPMs
LINUXRPMSITE=http://ftp.redhat.com/pub/redhat/linux/7.3/en/os/i386/RedH
at/RPMS
#
# VPS processes files
# VPS system calls file
SETUP=/proc/vservers/setup
# Per context running configuration
SELF=/proc/vservers/self
#
# Required packages
# HSphere VPS scripts package
HSVPSPACKAGE=hsphere-vps
# FreeVPS tools package

```

```
FREEVPSTOOLSPACKAGE=freevps-tools
# Linux virtual server utilities package
VSERVERPACKAGE=vserver-
```

VPS Templates

VPS template is a predefined set of RPMs to install a certain service, tool or application.

Templates are installed to VPS upon its creation or to a live VPS. Basically, template is a structured file with the list of RPM packages, including their names, full version and platform architecture.

All VPS templates are located in the `$VPSCONFIGS/$LINUXCODE` directory. Default location:

Red Hat Linux release 7.3: `/hsphere/local/config/vserver/RH73`

Red Hat EL 3, CentOS 3.x, White Box EL 3:

`/hsphere/local/config/vserver/RHES3`

VPS templates have the following filename format:

`rpm_<template_name>.cfg`

where `<template_name>` may contain any characters possible in Unix file names, except `'_'` and `'.'`.

RPM files listed in the templates must be located either in your `$LINUXRPMS` directory (this location can be configured by running the `vps-configure.pl` script), or in the Parallels H-Sphere packages directory `$HSINSTALLPKG/$LINUXCODE`:

Red Hat Linux 7.3: `/hsphere/install/pkg/RH73`

Red Hat EL 3, CentOS 3.x, White Box EL 3: `/hsphere/install/pkg/RHES3`

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Creating and Modifying VPS Templates

RPM files listed in template file must satisfy all dependences during their installation.

To configure, modify, create new templates, run the `vps-configure.pl` script. You will see the following prompt:

```
Application Templates available to install:
1 - [ ] dns-server
2 - [ ] development-tools
3 - [ ] ftp-server
4 - [ ] mail-server
5 - [ ] mysql-server
6 - [ ] news-server
7 - [ ] perl-full
8 - [ ] postgresql-server
9 - [ ] samba-server
10 - [ ] system-tools
11 - [ ] web-server
-----
[ a ] - add template
[ d ] - delete template
[ c ] - change template installation order
(must satisfy package dependences during installation)
[ n ] - new template
[ m ] - modify template
[ s ] - save and exit
[ e ] - exit without saving
```

Enter the number of a template to be turned on/off, or choose any of the options:

- [a] - add template - select this option to add an existing template to be available for VPS installation.
- [d] - delete template - select this option to delete an existing template from the list of available templates for VPS installation.
- [n] - new template - select this option to create your own custom template. Here you will be prompted for the template name and the names of RPM packages to be included into the template. Package names listed in the template must be each in new line. When you finish, press Ctrl+D.
- [m] - modify template - use this option to modify the list of packages included to the template.

Then, you save the list and exit ([s]), or exit without save ([e]).

Default Templates

base

- Core VPS Linux installation. It includes:
- vps kernel;
- networking support;
- OpenSSH connection;
- basic tools and libraries;
- service configuration tools;
- cron, scheduling tasks support;
- utility to control the network packet filtering code in Linux kernel;
- system logging management tools;
- man pages (documentation) from Linux Documentation Project (LDP);
- Perl high-level programming language;
- Aspell spelling checker;
- Python programming language;
- Sendmail - widely used Mail Transport Agent (MTA).

samba-server

Windows file server. This package group allows you to share files between Linux and MS Windows™ systems.

It includes:

- samba protocol for sharing files, printers, and other information (such as available files and printers);
- CUPS (Common UNIX Printing System): portable printing layer for UNIX operating systems.

ftp-server

These tools allow you to run FTP server on VPS's.

They include:

- fast, read-only, anonymous FTP server;
FTP server daemon.

pgsql-server

PostgreSQL database server. This package group includes packages useful for use with PostgreSQL.

It includes:

- advanced Object-Relational database management system (DBMS) - PostgreSQL server;
an implementation of DBI for PostgreSQL for Perl;
a dynamic shared object (DSO) that can be compiled in to the Apache Web server to add PostgreSQL database support to PHP.

web-server

These tools allow you to run a Web server on VPS:

- powerful, full-featured, efficient, and freely-available Apache Web server;
- PHP - an HTML-embedded scripting language;
- a utility to convert Active Server Page (ASP) files run on the Microsoft IIS Web server, to PHP pages;
- additional modules to give Apache Web server the ability to understand the DAV (Distributed Authoring and Versioning) protocol of HTTP extensions, to incorporate a Perl interpreter into the Apache Web server, to provide strong cryptography for the Apache Web server via Secure Sockets Layer (SSL) and Transport Layer Security (TLS) protocols;
- Web server log analysis program - Webalizer;

dns-server

This package group allows you to run DNS name server (BIND) on the system.

It includes:

- BIND (Berkeley Internet Name Domain) - an implementation of the DNS (Domain Name System) protocols. BIND includes a DNS server (named) which resolves host names to IP addresses; a resolver library (routines for applications to use when interfacing with DNS); and tools for verifying that the DNS server is operating properly;
- configuration files that will make BIND, the DNS name server, act as a simple caching nameserver.

mysql-server

MySQL database server. This package group contains packages to be used with MySQL.

It includes:

- a multi-user, multi-threaded SQL database server;
- a MySQL interface for Perl;
- a dynamic shared object that will add MySQL database support to PHP.

mail-server

These packages allow you to configure an IMAP or Postfix mail server.

They include:

- server daemons for both the IMAP (Internet Message Access Protocol) and POP (Post Office Protocol) mail access protocols;
- Mail Transport Agent (MTA), supporting LDAP, SMTP AUTH (SASL) - Postfix.

news-server

This group allows you to configure the system as a news server.

It includes:

- an automatic spam filter for Usenet news servers and routers - Cleanfeed;
- the inews program;
- INN (InterNetNews) is a complete system for serving Usenet news and/or private newsfeeds.

perl-full

Additional modules for Perl programming languages.

It includes:

- Expat C library for parsing XML;
- database access Application Programming Interface;
- module for the handling of tar archives;
- library which allows you to handle bit vectors, sets (of integers);
- module providing an interface for testing and setting process limits and priorities;
- module provides support for the https protocol under LWP;
- date/time manipulation modules;
- various XML partner modules for Perl;
- module for perl to parse and extract information from HTML documents.

system-tools

This group is a collection of various tools for the system, such as the client for connecting to SMB shares and tools to monitor network traffic.

It includes:

- arbitrary precision numeric processing arithmetic language and an interactive arbitrary precision stack based calculator;
- LiSt Open Files tool to list information about files that are open and running on a Linux/UNIX system;
- utility to decode and encode multilingual streams using many coding systems;
- Pax - the POSIX standard archive tool;
- Pinfo - an info file (or man page) viewer with a user interface similar to the Lynx Web browser interface;
- procinfo command to get system data from the /proc directory;
- stat utility;

- superuser do (sudo);
- symlinks utility;
- tree utility;

development-tools

These tools include core development tools such as automake, gcc, python, and debuggers.

They include:

- Autoconf - tool for configuring source code and Makefiles;
- public domain LALR parser generator;
- CVS (Concurrent Version System) is a version control system;
- Berkeley DB version 1,2,3 (4);
- utility that allows you to show dialog boxes in TTY (text mode) interfaces;
- diff and diffstat - compares/reads the output of files;
- various DocBook documentations;
- Scanners programs which can recognize lexical patterns in text;
- the cc and gcc GNU compilers for compiling C code;
- C++ support to the GNU C compiler;
- gd graphics library.

VPS Limits

Parallels H-Sphere enables to configure VPS resource limits in Parallels H-Sphere VPS plans and in user control panel.

Limit	Label	Description	Requirements & Restrictions	Related VPS Scripts
Disk	DLIMIT	Disk Limit is the maximum disk usage for a VPS server. Default - disabled (set to 0).	Disk Limit cannot be exceeded. No more data will be dumped into the disk if disk usage reaches Disk Limit. Minimal VPS installation requires ~ 500MB allocated disk space.	<pre>vps-dlimit-set <vps_name> <limit> - sets the limit to <limit> Mb for vps <vps_name> vps-dlimit-get <vps_name> - returns current value for vps <vps_name></pre>
Memory	MLIMIT	Memory Limit is the maximum total memory usage for processes running and libraries loaded on a VPS server. Default - disabled (set to 0).	<p>Memory Limit depends on tasks running on a VPS server. Memory Limit cannot be exceeded. No more memory will be allocated if VPS total memory usage reaches Memory Limit.</p> <p>VPS server total memory usage = resident/virtual memory usage + system SWAP.</p> <p>Minimal VPS installation requires ~15-20Mb allocated memory. Processes are processed by linux OOM - out of memory killer.</p>	<pre>vps-mlimit-set <vps_name> <limit> - sets the limit to <limit> Mb for vps <vps_name> vps-mlimit-get - returns current value for vps <vps_name></pre>

Process	PLIMIT	Process Limit is the maximum number of processes running inside a VPS server. Default - disabled (set to 0).	Process Limit cannot be exceeded. No new processes will be created if the number of running processes reaches Process Limit. All new processes will be killed. Minimal VPS installation requires ~10-20 processes to run.	<pre>vps-proclimit-set <vps_name> <limit> - sets the limit to <limit> value for vps <vps_name></pre> <pre>vps-proclimit-get <vps_name> - returns current value for vps <vps_name></pre>
Context RSS	RSSLIMIT	Context RSS Limit is maximum resident/virtual memory usage for processes running and libraries loaded on a VPS server. Default - disabled (set to 0).	Context RSS Limit depends on virtual memory available on the host server (physical machine), on tasks running on a VPS, and on total memory limit. Context RSS Limit cannot exceed Memory Limits When VPS virtual memory usage exceeds RSS limit, VPS starts to use the host server's SWAP. Recommended value for Context RSS Limit = $1/3 * \text{Memory Limit}$.	<pre>vps-rsslimit-set <vps_name> <limit> - sets the limit to <limit> Mb for vps <vps_name></pre> <pre>vps-rsslimit-get <vps_name> - returns current value for vps <vps_name></pre>
File	FILELIMIT	File Limit is the maximum number of file handlers opened inside a VPS server. Default - disabled (set to 0).	File Limit cannot be exceeded. No new files will be opened if the number of opened file handlers reaches File Limit. Minimal VPS installation requires ~150-200 opened file handlers allowed.	<pre>vps-flimit-set <vps_name> <limit> - sets the limit to <limit> value for vps <vps_name></pre> <pre>vps-flimit-get <vps_name> - returns current value for vps <vps_name></pre>

TCP Socket	TCPLIMIT	TCP Socket Limit is the maximum number of TCP connections established on a VPS server. Default - disabled (set to 0).	TCP Socket Limit cannot be exceeded. No new connection via TCP (for example, SSH connections) will be established if their number reaches TCP Sockets Limit.	<pre>vps-tcplimit-set <vps_name> <limit></pre> - sets the limit to <limit> value for vps <vps_name> <pre>vps-tcplimit-get <vps_name></pre> - returns current value for vps <vps_name>
CPU Hard	HARDCPU	CPU Hard Limit is the maximum CPU usage (of all host server CPUs) for a VPS server. Default - disabled (set to 0).	CPU Hard Limit must be less than 100%. CPU Hard Limit cannot be exceeded. When usage reaches CPU Hard Limit, new task will be waiting for free CPU resources. That increases system load. CPU Hard Limit depends on VPS task priority.	<pre>vps-hcpulimit-set <vps_name> <limit></pre> - sets the limit to <limit> value for vps <vps_name> <pre>vps-hcpulimit-get <vps_name></pre> - returns current value for vps <vps_name>
CPU Guaranteed (CPU Soft Limit)	SOFTCPU	The guaranteed value of CPU resources (in %) which can be allocated by virtual server if they are required and available in host system. Default - disabled (set to 0).	CPU Guaranteed Limit must be less than CPU Hard Limit and 100%. For all registered vps on host Summary CPU Guaranteed Limit values must be less than 100%.	<pre>vps-scpulimit-set <vps_name> <limit></pre> - sets the limit to <limit> value for vps <vps_name> <pre>vps-scpulimit-get <vps_name></pre> - returns current value for vps <vps_name>

Note: VPS limit labels are set by the `vps-get-config.pl` script. See VPS Scripts (on page 321).

Hints On Handling VPS Limits

- Limit values depend on the number of VPS's running on the host, and tasks running on them.
- When summary virtual memory size used by VPS/context exceeds Memory Limit value, processes can't allocate the required memory and fail to run.
- If Memory Limit you set to VPS equals the whole virtual memory available on the host, in a while virtual server will use up all the host's swap.
- If you turn off both Memory and Context RSS limits, kernel can DoS or panic.

- While setting initial Disk Limit before VPS creation, please mind that it must be greater than minimal Linux RedHat installation size (~450-500Mb). Otherwise, Disk Limit will be turned off during the installation.
- For lowlevel virtual server limits management use `vserver_limit` tool provided by FreeVPS. For more info about it run:

```
# man vserver_limit
```

Changing VPS Solution

In Parallels H-Sphere you can install VPS server based on FreeVPS or OpenVZ solution. If you already have a VPS logical server based on one of the solutions, starting with Parallels H-Sphere VPS 2.0 it is possible to switch to another solution in console or from Parallels H-Sphere Control Panel

Changing Solution from Parallels H-Sphere Control Panel

Parallels H-Sphere users can easily switch from FreeVPS to OpenVZ (and vice versa) solution from their Control panel. For this:

- 1 Switch from one solution to another in VPS server additional options.
- 2 Run Parallels H-Sphere updater from CP.

In this section:

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Changing Solution from Console

To change VPS solution from FreeVPS to OpenVZ and vice versa, use the `./vps-change.pl` script. The script takes new solution name for a particular virtual server or for all registered on the host virtual servers.

For help, run:

```
# hsphere-scripts/vps-change.pl -?

Usage:
vps-change.pl --vps=VPS_NAME|--all --solution=SOLUTION [--help|--?|--man]
Options:
--vps=*VPS_NAME*
Virtual Private Server Name
--all
Change solution for all registered in the host virtual servers
--solution=*SOLUTION*
New virtual private server solution. Following are available: *openvz*
*freevps*
--help|--?
Print the usage message
--man
Print the entire manual page
The VPS will work under new solution after the box is booted with
corresponding kernel.
VPS is suspended while solution is changed. It is required to resume
it.
```

The following tasks are performed during the solution change:

- 1 Virtual server config structure is changed to become compatible with and acceptable by new solution
- 2 VPS virtual network is completely reconfigured. Old virtual interfaces are removed, and the new ones are created with the same IP address configuration. The old/unused virtual network configuration is completely removed.
- 3 Virtual context *flags* are changed to be compatible with new solution.
- 4 Internal virtual server services (daemon) scripts will be changed.
- 5 Virtual server pre/post start/stop scripts are changed.

WARNING:

- VPS is suspended during the solution change.
- VPS will work under new solution only after the box is booted with a corresponding solution kernel, e.g. if you change VPS solution from FreeVPS into OpenVZ, you must boot the box with OpenVZ kernel.
- Please pay attention to virtual servers which solution was not changed: they will not work until the box boots the kernel of other solutions! These virtual servers will be considered as corrupted.

Changing Solution from Parallels H-Sphere Control Panel

Parallels H-Sphere users can easily switch from FreeVPS to OpenVZ (and vice versa) solution from their Control panel. For this:

- 1 Switch from one solution to another in VPS server additional options. Refer to Logical Servers section of Parallels H-Sphere Service Administrator Guide.
- 2 Run Parallels H-Sphere updater from CP.

Configuring VPS Host

This document is a step-by-step instruction on how to globally configure all virtual private servers from the VPS host server.

Though, Parallels H-Sphere VPS interface configuration may slightly vary from version to version, the core procedure remains the same:

- 1 Log into the VPS host server under root and run the VPS configuration script:

```
# /hsphere/shared/scripts/vps-configure.pl
```

You'll see the versions of VPS packages installed on your host server. For example:

```
Kernel: 2.4.21-freevps-1.4hugemem
FreeVPS patch build: 1114360337
Base freevps tools package: freevps-tools-1.3-17
Parallels H-Sphere VPS scripts package: hsphere-vps-1.3-6.7
RedHat release: RH73
```

With the further steps, you'll perform basic configuration for all your virtual servers. The default values are enclosed in square brackets ([]). To accept them, press ENTER.

- 2 Point to all Virtual Private Servers home directory which you has created during installation:

```
Please point to the directory where all Virtual Private
Servers will be stored.
Make sure it has enough free space!
The default is: [/hsphere/local/vservers]
After entering path, you will be informed about free disk
space in it:
Free disk space on /hsphere/local/vservers: XXXXXXXX Mb
```

- 3 Choose the gateway. The gateway of the main server, suggested as the default, should be selected if the main server and the virtual private servers will belong to the same subnet. Otherwise, enter a different gateway's IP:

```
Gateway will be used for routing by VPSs: [192.168.112.1]
```

- 4 Specify the IPs of your name servers. If you are running the script for the first time, no defaults are suggested. Once you enter name server IPs, they will be remembered and used when you run the script again:

```
Enter name server IP(s) separated with spaces: [192.168.112.1
192.168.112.102]
```

- 5 On this step, the script tries to find this host's network device. To accept the suggested value, press Enter. Otherwise, enter a different device name:

```
Host ethernet device will be used for VPSs: [eth0]
```

- 6 If you need to assign more than 16 IPs to VPS, type "yes" to use ethernet aliases:

```
Would you like to use virtual ethernet device [eth0] aliases
instead of creating new virtual devices [yes/no]?
```

Normally, VPS supports up to 16 virtual ethernet devices, and up to 16 IPs per each virtual ethernet device, thus totally 16x16=256 IPs available for assignment per VPS. But if it requires to assign more than 16 different IPs to VPS, you need to reconfigure your VPS to assign IPs to virtual ethernet devices aliases.

- 7 Specify the directory with the full set of RPMS. If you don't have the RPMS, they will be downloaded to this directory on the next step. If your RPMS are located in the default directory (for example, in /home/RedHat/7.3/RedHat/RPMS), just press Enter, otherwise, type the actual path to the RPMS directory:

```
Please specify where Linux RedHat 7.3 installation RPMS are
located.
The default is: [/home/RedHat/7.3/RedHat/RPMS]
```

- 8 Then you will be asked for required packages checking. Configuration script can perform package test in case it is damaged, using gpg -- encryption and signing tool. To say "yes" just press 'Enter' or type 'y', 'yes'.

```
Would you like to check Linux RH73 installation RPMS [y/n]?
```

- 9 You can install on your virtual servers additional sets of packages, or VPS templates (on page 348). Default VPS templates are:

samba-server - Windows File Server
ftp-server - FTP Server
pgsql-server - PostgreSQL SQL Database
web-server - Web Server
dns-server - DNS Name Server
mysql-server - MySQL Database
mail-server - Mail Server
news-server - News Server
perl-full - Perl programming language modules
system-tools - System Tools

development-tools - Development Tools

You can also enable some additional services:

smb - provide SMB network services

winbind - Starts and stops the Samba winbind daemon

postgresql - This is the init script for starting up the PostgreSQL server

aep1000 - load and unload AEP1000/AEP2000 coprocessor driver

bcm5820 - BCM5820 - Broadcom BCM5820 Cryptonet init script

squid - Squid - Internet Object Cache

tux - This starts and stops the TUX kernel-based http server.

httpd - Startup script for the Apache Web Server

named - DNS service

mysqld - This service takes care of starting and stopping the MySQL subsystem (mysqld)

You will get the following prompt:

```
Would you like to install additional templates such as:
"(templates list goes here)" [y/n]?
```

If you choose to install additional packages, you will have the opportunity to configure templates and services to be available on your Virtual Private Servers. Read more about Parallels H-Sphere VPS templates (on page 348).

```
Additional services:
1 - [ ] httpd
2 - [ ] sendmail
3 - [ ] mysqld
4 - [ ] postgresql
5 - [ ] rhnsd
6 - [+] winbind
-----
[ a ] - add
[ d ] - delete
[ s ] - save and exit
[ e ] - exit without saving
-----
Enter the number of the service to be turned on/off, or choose
an option:
```

If you are going to enable new Additional services, the script will prompt you to enter the name of a service.

Mind that service must be installed to a virtual server.

/etc/rc.d/init.d/<service_name> is required to start/stop the service in your virtual server(s).

For example, to enable the winbind service, packages from the samba list (/hsphere/local/config/vserver/RH73/rpm_samba.cfg) will install the /etc/rc.d/init.d/winbind file.

[d] - deletes lists/services from the additional package lists/services enabled.

[c] - changes list installation priority.

For example, installation packages from the http package list (packages required to install Apache Web server) require the gcc package to be installed first.

[n] - helps you to create your own list of additional packages to install.

Enter the name of the new list of package (i.e., `my_list`) and the names of RPM packages to be added to the list. Press Enter after each package name. When you finish, press Ctrl+D.

Remember that all of this packages must be located in the RPMS directory. If these packages are not there, you will be prompted to download them.

Then, you save the list and exit ([s]), or exit without save ([e]).

- 10** If you don't have required RPM packages for the base Linux installation (e.g. you installed RedHat from a CD-ROM), answer YES (type 'yes'), and the script will download these packages:

```
Would you like the script to automatically download required
for Linux RH73 installation RPMs [yes/no]?
```

- 11** If you choose to download the packages (answered YES on the previous step), you will be prompted for their location:

```
Please specify the URL where Linux RH73 installation RPMs are
located.
The default is:
[ftp://192.168.112.77/pub/RedHat/7.3/RedHat/RPMS]
```

If the URL is valid, the download will start:

```
Downloading packages ...
base packages:
4Suite-0.11.1-8.i386.rpm [OK]
Distutils-1.0.2-2.noarch.rpm [OK]
...
-----
202 packages successfully downloaded.
0 packages skipped.
0 packages failed to download.
```

If some packages fail to download, please download them manually or run this script once again.

- 12** Script will check all required packages. If the gpg Linux RPMs public key is not installed, script will install it. Also script will import Linux RPMs public key to rpm database. If public key is installed and imported, you will see it, and all templates will be checked. For example:

```
Linux RH73 RPMs public key:
/root/.gnupg/pubring.gpg
-----
pub 1024D/DB42A60E 1999-09-23 Red Hat, Inc
sub 2048g/961630A2 1999-09-23
```

```
Checking packages required for VPS initialization ...
```

```
Checking in 'base' template ...
```

- 13** Specify if all VPSs will start at system reboot. Type 'y', 'yes' or press Enter for YES. If you choose 'no', none of your VPSs will be started automatically, and you will have to resume every individual VPS manually in the control panel after the system reboot:

```
Would you like all VPSs to start at physical server startup
[y/n]?
```

- 14** At this point, the script will finish the configuration with the following notification (see VPS cron scripts (on page 326) in VPS scripts documentation):

```
Writing to crontab: vps-cron-fix.pl [OK]
Writing to crontab: vps-cron.pl [OK]
Writing to crontab: vps-cron-traf.pl [OK]
Writing to crontab: vps-cron-delete.pl [OK]
Changing chkconfig... [OK]
```

At the end, you'll be prompted to save the changes you have made:

```
Save your changes [y/n]?
```

For more options run:

```
# /hsphere/shared/scripts/vps-configure.pl --help
```

VPS configuration parameters (on page 344) set by the `vps-configure.pl` script are stored in the `/hsphere/local/config/vserver/vps.cfg` file. **Do not change this file manually!**

Customizing Operating System Distributive URLs

You can customize OS distributive URLs in a separate VPS config file located in the `$VPSCONFIGS/$VPS_DISTR_URLS` (`/hsphere/local/config/vserver/vps.distr.url` by default).

File format example:

```
CentOS3="ftp://ftp.arcticnetwork.ca/pub/centos/3/os/i386/RedHat/RPMS
ftp://ftp.arcticnetwork.ca/pub/centos/3/updates/i386"
RH73="ftp://fr2.rpmfind.net/linux/redhat/7.3/en/os/i386/RedHat/RPMS
ftp://fr2.rpmfind.net/linux/redhat/updates/7.3/en/os/i386"
WBEL3="ftp://ftp.esat.net/mirrors/whiteboxlinux.org/3.0/en/os/i386/RedH
at/RPMS
ftp://ftp.esat.net/mirrors/whiteboxlinux.org/3.0/en/updates/"
```

Dedicated Servers

This chapter tells you how to configure MRTG service for dedicated servers.

In this chapter:

Configuring MRTG 364

Configuring MRTG

In Parallels H-Sphere the MRTG software (<http://mrtg.hdl.com/mrtg.html>) is used for the dedicated hosting feature. This software is installed to Parallels H-Sphere as a logical server from `hsphere-mrtg-rrd-X-X` package, where X-X is the latest available version.

Mrtg service is managed by `supervise`, similarly to `clamd`, `spamd`, `ftpd`, and `bind`. Apache service with configured VirtualHost for mrtg service is required which is provided by Apache configuration.

Mrtg works with RRDtool (<http://people.ee.ethz.ch/~oetiker/webtools/rrdtool/>) which improves its performance and graphing flexibility. RRDtool is used as the logger to MRTG. It stores data samples on each of the network switch interfaces (ports) in a separate RRD. To minimize size of the database files, RRD uses the consolidation mechanism. It guarantees that the database does not grow over time and that old data is automatically eliminated. However this leads to degradation of accuracy. For the sake of high degree of data accuracy, space for 10080 samples (35 days) is allocated. The DSBandwidthLoader daily cron acquires data from RRDs and stores it into the hsphere database.

Managing MRTG Service

For Linux:

```
/etc/init.d/mrtg stop | start | restart | stat
```

For FreeBSD:

```
/usr/local/etc/rc.d/mrtg.sh stop | start | restart | stat
```

Configuration Directory and File

Mrtg configuration directory is `/hsphere/local/config/mrtg`.

`/hsphere/local/config/mrtg/mrtg.conf` - mrtg configuration file. It has an `include` for `/hsphere/local/config/mrtg/ports/index.conf` which in its turn contains `includes` for files corresponding to each operational switch port. Such files are generated dynamically via CP interface when switch ports are assigned to dedicated servers.

Scripts Processing Data

`/hsphere/local/config/mrtg/scripts/getstatistics` - gathers data from each port file.

`/hsphere/local/config/mrtg/scripts/setstartbill` - sets the start billing period date.

`/hsphere/local/config/mrtg/scripts/formgraph` - draws traffic graphs.

RRD Files

Mrtg writes RRD files to `/hsphere/local/config/mrtg/rrd` directory. In its subdirectories image files with bandwidth representations for chosen periods are located:

- `~httpd/htdocs/rrd/d` - day
- `~httpd/htdocs/rrd/w` - week
- `~httpd/htdocs/rrd/m` - month
- `~httpd/htdocs/rrd/y` - year

The Problem with Calculating Large (>100mbps) Bandwidth Traffic

It is a known issue that MRTG with 32-bit counters doesn't calculate correctly the traffic when bandwidth exceeds 100 Mbps. A solution is to switch to 64-bit counter by choosing SNMPv2c/SNMPv3 protocols. This, however, may not work because some devices don't support these protocols.

➤ **To switch to SNMPv2c/SNMPv3, you need to manually customize:**

- 1 Log into the CP server as cpanel user.

- 2 Copy the default template `~cpanel/shiva/shiva-templates/common/ds/mrtg_target.config` to the custom `~/shiva/custom/shiva-templates/common/ds/mrtg_target.config` location. **Please carefully follow the template customization procedure described in Parallels H-Sphere Customization Guide.**

- 3 Edit the first line with `${port}:${com_name}@${device}:` according to the MRTG Reference (<http://oss.oetiker.ch/mrtg/doc/mrtg-reference.en.html>).

For example, to switch to SNMPv2c, the line will be like this:

```
Target[${target}]: <if config.REVERSE_DEDICATED_SERVER_TRAFFIC
!= "TRUE">-</if>${port}:${com_name}@${device}:::2
```

For more advanced configuration please refer to MRTG Reference.

- 4 Restart Parallels H-Sphere to apply customization.

System Packages

Parallels H-Sphere installation is modular, its packages independent and self-configurable. It is possible to use standard package managers (on page 25) like `yum`, `up2date` or `apt-get` for scheduled updates of Parallels H-Sphere services, instead of running occasional update scripts or updating Parallels H-Sphere versions.

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Common Packages

Common packages are those used for different types of H-Sphere servers. For example, `hsphere-apache` is installed on Web, mail, MySQL (for PhpMyAdmin), and PostgreSQL (for PhpPgAdmin) servers; and the `hsphere-scripts` package is installed on every Unix server.

Below is the reference on some common packages.

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hsphere-info: Collecting Information About Parallels H-Sphere Servers into XML Configs

Parallels H-Sphere includes the `hsphere-info` package installed on each Parallels H-Sphere Unix server. The package installs the `/hsphere/shared/bin/hsinfo` script on each server, and the script collects information about this server into the `/hsphere/shared/etc/config.xml` file.

hsinfo Usage:

```
hsinfo [ -ame ] [ -p box IP ] [ -g group ] [ -t type ] [ -f xmlfile ] [
-s delimiter ]
hsinfo -l [ -p box IP ] [ -g group ] [ -s delimiter ] [ -f xmlfile ]
hsinfo -i [ -ame ] [ -g group ] [ -f xmlfile ] [ -s delimiter ]
hsinfo -n [ -p box IP ] [ -g group ] [ -f xmlfile ]
hsinfo -o a[ddress]|i[n]terface|n[umber] [ -f xmlfile ]
hsinfo -d [ -f xmlfile ]
hsinfo -v [ -f xmlfile ]
hsinfo -G
hsinfo -T
hsinfo -h -l list of logical server names
        -i list of physical server IPs -n domain name of the logical
server
        -d service zone name -p physical box IP (default: local physical
box)
        -v hspere version
        -a show IP address -m show mask
        -e show external IP addreyyss
        -o show network interface name of the physical IP
        -G list of possible logical server groups
        -T list of possible IP types
        -h help
by default show only IP addresses
group: cp, mail, unix_hosting, windows_hosting, mysql, pgsql, mssql,
dns, mrtg, system (default: all)
type: system, service, shared, dedicated, resellerSSL, resellerDNS, all
(default: service)
xmlfile: XML file location (default: /hsphere/shared/etc/config.xml)
```

The `/hsphere/shared/etc/config.xml` file contains information about physical and logical server names, IDs, IP addresses; system zones; current Parallels H-Sphere version, etc.

Download sample `config.xml` from

<http://download.hsphere.parallels.com/HSDocumentation/xmIs/config.xml>.

This sample XML is for NAT configured Parallels H-Sphere cluster (on page 28). Otherwise, if external IPs are used for H-Sphere logical and physical servers, the `extIP` attribute is omitted, for example:

```
<ip type="shared">
  <addr>11.22.33.44</addr>
  <mask>255.255.255.0</mask>
</ip>
```


hsphere-update Package

The `hsphere-update` package is installed on each Parallels H-Sphere box. When updating Parallels H-Sphere, it runs the `upackages` script on the CP box to update Parallels H-Sphere packages on each box to their latest version.

upackages Syntax

```
upackages [ -h ] [ -i ] [ -f ] [ -s ] [ -v version ] [ -V ] [ -e
show|add:pattern,...|del:pattern,...|del:all ] [ -p ] [ -w ] [ -m ] [ -
j ] [ -P ] [ -r ] [ -u ] [ -P ] [ -n ] [ -M ] [ -S ] [ -R ] [ -N ] [ -I ]
[ -o ]
```

Where:

- **-h** - help information
- **-i** - ignore md5 sum of the downloaded packages, only warning
- **-f** - force mode, update packages by force, when md5 sum of the installed hsphere package differs from downloaded package
- **-s** - update only packages change, which takes place in the hsphere subversion according to corresponding version
- **-v version**, format U[version]/U[subversion]. If not specified, `/hsphere/shared/etc/hsversion` file is checked
- **-V** - verbose mode
- **-e [show|add:pattern1,pattern2,...|del:pattern1,pattern2,...|del:all]** - show, set or delete a list of the packages belonging to a service specified by pattern (`patternN`), which must be skipped during the update on all or particular HS boxes. The following services (`patternN`) are available for excluding: dns, mysql, postgresql.

Note: Use this carefully as HS packages are connected with HS version. This may be used if you have a customized version of the specific HS package or if you update system packages, like MySQL server, via native OS package manager, etc.

For example:

```
hspackages exclude=add:mysql ips=192.168.1.10
```

- **-p** - PostgreSQL update (for new HS box this is done by default)
- **-w** - Site Studio update
- **-m** - MyDNS service is used instead of Bind 9.3.x, Update of the bind will be skipped.
- **-j** - required during IP migration
- **-r** - package update strictly according to package list (by default update of packages with higher version skipped)
- **-t [php,httpd,ftpd,mysql,pgsql,cphttpd,named]** - place custom templates in the required location for further editing
- **-P** - private update (for testing purpose)
- **-u** - source URL for packages download redefinition
- **-n** - skip restart of postgres and httpdcp at the end of update

- **-M** - update modes (presingle, hspresingle, postsingle, hspostsingle, cpinstall, hsupdate, postgres, sitestudio, update, ipmigration, deploy):
 - presingle - single server package mode
 - hspresingle - 'presingle' mode, except sitestudio installation
 - postsingle - single server deploy mode
 - hspostsingle - 'postsingle' mode, except sitestudio postconf
 - cpinstall - control panel preinstall procedure
 - update - full update (all packages update)
 - hsupdate - 'update' mode, except sitestudio update
 - postgres - postgres update
 - sitestudio - sitestudio update
 - ipmigration - reconfiguring IP dependent information
 - deploy - deploy mode (general box post-reconfiguration)
- **-S** - slave installation/update mode - provides installation/update of web or mail slave box
- **-R mask1[,mask2,...]** - revert mode, provides downgrade of a set of packages with mask1[,mask2,...]
- **-N** - this option allows to force install/update for the deprecated OS/soft listed in <http://hsphere.parallels.com/eol.html>, if possible
- **-I** - this option allows to get exclude package list from stdin (used in HS 3.1 for different update profile configuration in CP interface). Retrieved package list is merged with pre-configured exclude package list
- **-o** - skips pre-configured exclude package list during update

For instance, install packages for Parallels H-Sphere 2.5 Patch 6 with md5 sum of the downloaded files ignored:

```
upackages -i -v U25.0/U25.0P6
```

Parallels H-Sphere Perl Modules

All necessary Perl modules used by Parallels H-Sphere on supported OS are installed from a single package `hsphere-perl-x-x`.

There is no need to update Parallels H-Sphere Perl modules by yourself, as when Perl version is updated/downgraded, the `/hsphere/local/config/perl/hspmod.switch` utility is used to switch Perl to a proper Parallels H-Sphere Perl modules version. `hspmod.switch` has the following syntax:

```
hspmod.switch { -l | -v perl_version }
```

Where:

- l lists all possible Parallels H-Sphere perl module versions you may switch to.
- v switches to the modules of proper `perl_version`, which must be specified in 0-9.0-9.0-9 format.

The modules for both native OS perl and currently stable perl are included into the latest perl package update.

The following Perl modules are included into the latest `hsphere-perl` package and installed to `/hsphere/shared/lib/perl5/` or `/hsphere/shared/lib/perl5/site_perl`:

- Authen-PAM-0.15, <http://search.cpan.org/search?query=Authen-PAM&mode=all>
- Crypt-PasswdMD5-1.3, <http://search.cpan.org/search?query=Crypt-PasswdMDS&mode=all>
- DBI-1.55 <http://search.cpan.org/search?query=dbi&mode=all>
- DBD-mysql-4.004c, <http://search.cpan.org/search?query=DBD-MySQL&mode=all>
- DBD-Pg-1.43, <http://search.cpan.org/search?query=DBD-MySQL&mode=all>
- Digest-SHA1-2.10, <http://search.cpan.org/search?query=Digest-SHA1&mode=all>
- Digest-HMAC-1.01, <http://search.cpan.org/search?query=Digest-SHA1&mode=all>
- Net-IP-1.23, <http://search.cpan.org/search?query=Net-IP&mode=all>
- Digest-MD5-2.33, <http://search.cpan.org/search?query=md5&mode=all>
- Data-ShowTable-3.3, <http://search.cpan.org/search?query=Data-ShowTable&mode=all>
- HTML-Parser-3.56, <http://search.cpan.org/search?query=html-parser&mode=all>
- HTML-Tagset-3.04, <http://search.cpan.org/search?query=html-tagset&mode=all>
- MD5-2.03, <http://search.cpan.org/search?query=md5&mode=all>
- MIME-Base64-3.05, <http://search.cpan.org/search?query=Mime-Base64&mode=all>
- Test-Simple-0.70, <http://search.cpan.org/search?query=Test-Simple&mode=all>

- Net-DNS-0.59, <http://search.cpan.org/search?query=Net-DNS&mode=all>
- URI-1.35, <http://search.cpan.org/search?query=URI&mode=all>
- Passwd-1.2, <http://search.cpan.org/search?query=Passwd&mode=all>
- Quota-1.5.1, <http://search.cpan.org/search?query=Quota&mode=all>
- libnet-1.19, <http://search.cpan.org/search?query=libnet&mode=all>
- libwww-perl-5.803, <http://search.cpan.org/search?query=libwww-perl&mode=all>
- ParallelUserAgent-2.57, <http://search.cpan.org/search?query=ParallelUserAgent&mode=all>
- DB_File-1.815, http://search.cpan.org/search?query=DB_File&mode=all
- File-Spec-0.87, <http://search.cpan.org/search?query=File-Spec&mode=all>
- Digest-1.10, <http://search.cpan.org/search?query=Digest&mode=all>
- PodParser-1.26, <http://search.cpan.org/search?query=PodParser&mode=all>
- Storable-2.16, <http://search.cpan.org/search?query=Storable&mode=all>
- Geography-Countries-1.4, <http://search.cpan.org/search?query=Geography-Countries&mode=all>
- IP-Country-2.23, <http://search.cpan.org/search?query=IP-Country&mode=all>
- Net_SSLeay.pm-1.25, http://search.cpan.org/search?query=Net_SSLeay.pm&mode=all
- IO-Socket-SSL-1.06, <http://search.cpan.org/search?query=IO-Socket-SSL&mode=all>
- Net-Ident-1.20, <http://search.cpan.org/search?query=Net-Ident&mode=all>
- Crypt-OpenSSL-Bignum-1.03, <http://search.cpan.org/search?query=Crypt-OpenSSL-Bignum&mode=all>
- Crypt-OpenSSL-RSA-0.24, <http://search.cpan.org/search?query=Crypt-OpenSSL-RSA&mode=all>
- MailTools-1.76, <http://search.cpan.org/search?query=MailTools&mode=all>
- Mail-DomainKeys-1.0, <http://search.cpan.org/search?query=Mail-DomainKeys&mode=all>
- Time-HiRes-1.9707, <http://search.cpan.org/search?query=Time-HiRes&mode=all>
- IO-Interface-1.03, <http://search.cpan.org/search?query=IO-Interface&mode=all>
- Archive-Tar-Wrapper-0.08, <http://search.cpan.org/search?query=Archive-Tar-Wrapper&mode=all>
- Archive-Tar-1.30, <http://search.cpan.org/search?query=Archive-Tar-Wrapper&mode=all>
- Archive-Zip-1.18, <http://search.cpan.org/search?query=Archive-Zip&mode=all>
- Compress-Zlib-2.004, <http://search.cpan.org/search?query=Compress-Zlib&mode=all>
- Log-Log4perl-1.10, <http://search.cpan.org/search?query=Log-Log4perl&mode=all>
- IO-Zlib-1.05, <http://search.cpan.org/search?query=IO-Zlib&mode=all>
- Scalar-List-Utils-1.19, <http://search.cpan.org/search?query=Scalar-List-Utils&mode=all>

- XML-SAX-0.15, <http://search.cpan.org/search?query=XML-SAX&mode=all>
- XML-Simple-2.16, <http://search.cpan.org/search?query=XML-Simple&mode=all>
- Encode-Detect-1.00, <http://search.cpan.org/search?query=Encode-Detect&mode=all>
- Data-Dump-1.08, <http://search.cpan.org/search?query=Data-Dump&mode=all>
- Geo-IP-1.27, <http://search.cpan.org/search?query=Geo-IP&mode=all>
- Mail-DKIM-0.24, <http://search.cpan.org/search?query=Mail-DKIM&mode=all>

To see the list of modules with their versions for the specific `hsphere-perl` package, run the following command (specify the build instead of `x-x`):

```
rpm -q --provides hsphere-perl-x- x
```

The above mentioned modules are installed with `hsphere-perl` and required for proper Parallels H-Sphere work.

WARNING: Do not update or change any configuration of your system Perl, as it will most likely damage your Parallels H-Sphere installation.

The topic below provides the list of supported Perl versions.

In this section:

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Supported Perl Versions

Below is the list of Perl packages required for Parallels H-Sphere on supported operating systems. Please make sure that your operating system has the correct Perl version installed according to the following table.

To check the version of Perl installed on your box, run:

```
perl -V
```

Operating System	Supported Perl Versions
RedHat EL 3, CentOS 3.x, White Box EL 3.x	Perl 5.8.0; 5.8.7; 5.8.8; 5.10.0
RedHat EL 4, CentOS 4.x, White Box EL 4.x	Perl 5.8.5; 5.8.7; 5.8.8; 5.10.0
RedHat EL 4, CentOS 4.x, White Box EL 4.x (x86_64)	Perl 5.8.5; 5.8.7; 5.8.8; 5.10.0
RedHat EL 5, CentOS 5.x	Perl 5.8.8; 5.10.0
RedHat EL 5, CentOS 5.x (x86_64)	Perl 5.8.8; 5.10.0
FreeBSD 5.3	Perl 5.8.5; 5.8.6; 5.8.7; 5.8.8; 5.10.0
FreeBSD 5.4	Perl 5.8.6; 5.8.7; 5.8.8; 5.10.0
FreeBSD 5.5	Perl 5.8.6; 5.8.7; 5.8.8; 5.10.0
FreeBSD 6.0	Perl 5.8.7; 5.8.8; 5.10.0
FreeBSD 6.1	Perl 5.8.7; 5.8.8; 5.10.0
FreeBSD 6.2	Perl 5.8.7; 5.8.8; 5.10.0

Parallels H-Sphere Apache

In Parallels H-Sphere 3.1 Beta 1 the Web service functionality was greatly extended and improved to allow for more flexibility both in administering Unix web boxes and in end user Web settings.

This chapter describes the main features of the Web service software and includes information on Apache configuration useful for Parallels H-Sphere system administrators.

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Web Service Packages

Apache 2.2 underwent significant changes since 1.3 version. Accordingly, there are PHP modules compatible with each particular Apache version that is indicated in the name of PHP package (1x or 2x). The `cgi/cli` part of PHP is assembled and works based on Apache 1.3. Only the `pear` part of PHP is common for the two Apache versions.

Here is the list of web service software packages for Parallels H-Sphere 3.1 Beta 1 and up (note that versions are just examples that may differ from current ones):

Package	Description
hsphere-apache2-h3.1-2.2.6-x	Apache 2.2.x binaries, modules, libraries and headers
hsphere-apache-h3.1-1.3.39-x	Apache 1.3.x binaries, modules, libraries and headers
hsphere-apache-shared-h3.1-1-x	Configuration template files, scripts, startup files, etc. common for Apache 1.3.x and 2.2.x
hsphere-apache-utils-h3.1-1-x	Utilities used when parsing apache logs, lynx browser, etc.
hsphere-php4-1x-4.4.7-x	libphp4 for Apache 1.3.x
hsphere-php4-2x-4.4.7-x	libphp4 for Apache 2.2.x
hsphere-php4-cgi-4.4.7-x	CLI and CGI php4 binaries
hsphere-php4-pear-4.4.7-x	PEAR for PHP4

hsphere-php4-plugins-4.4.7-x	Set of plugins, their confs, which may work in pair with CLI, CGI or libphp4
hsphere-php5-1x-5.2.4-x	libphp5 for Apache 1.3.x
hsphere-php5-2x-5.2.4-x	libphp5 for Apache 2.2.x
hsphere-php5-cgi-5.2.4-x	CLI and CGI php4 binaries
hsphere-php5-pear-5.2.4-x	PEAR for PHP5
hsphere-php5-plugins-5.2.4-x	Set of plugins, their confs, which may work in pair with CLI, CGI or libphp5

Support of Apache 2.2.x and 1.3.x

In addition to Apache 1.3.x, support of Apache 2.2.x is implemented. There are two modes of Apache 2.2.x:

- MPM prefork (<http://httpd.apache.org/docs/2.2/mod/prefork.html>)
- MPM worker (<http://httpd.apache.org/docs/2.2/mod/worker.html>)

For the MPM worker mode, cgi requests are processed via `mod_cgid`.

Tuning Web Service from the CP Interface

In Parallels H-Sphere 3.1 Beta 1 and up there is a possibility to choose some Web settings for a physical Web server right from administrator's cp interface:

- switch between Apache versions

Note: this setting is available for all physical boxes.

- enable additional Apache modules
- when enabling apache_security module, set also mod_security options
- set PHP configuration
- when enabling fastcgi mode, configure its VirtualHost options
- disable unnecessary PHP plugins

Note: For more detailed information, refer to section Advanced Web Server Settings of Parallels H-Sphere Service Administrator Guide.

All webbox related settings chosen from the cp interface are stored in the following file:
/hsphere/shared/scripts/scripts.cfg

Such changes are applied immediately by the script:

```
/hsphere/shared/scripts/manage-service.sh httpd restart
```

The settings are stored in the configuration file in the form of 'prefix_title=value'. There are several groups of settings:

In this section:

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Apache Settings

These are settings for enabling/disabling Apache modules. The prefix is `apache`. Here is the list of possible settings:

Title	Default Value	Comments
apache_libphp 4	1	
apache_libphp 5	0	
apache_ssl	1	
apache_scgi	0	
apache_frontpage	0	Ignored in Apache 2

apache_thrott le	0	Ignored in Apache 2
apache_status	0	
apache_fastcgi	0	
apache_securit y	0	
apache_cache	0	
apache_securit y2	0	Ignored in Apache 1
apache_versio n	1	Apache version. Only for Apache 2.
apache_mpm	prefork	MPM mode: prefork or worker. Only for Apache 2

All independent modules are implemented via specific templates each allowing for customization. They have their own config files which are inserted in the main config file using the `include` directive. The main config file is also realized via independent templates for Apache 1.3.x and 2.2.x.

PHP Settings

For each Apache version/mode (Apache 1.3.x or 2.2.x MPM prefork and MPM worker) there is a possibility to operate PHP in 6 modes: `libphp5`, `libphp4`, `cgi-php5`, `cgi-php4`, `fastcgi-php4`, `fastcgi-php5`. The prefix is `'php'`. Here is the list of possible settings:

Title	Default Value	Comments
php_libph p4	2	
php_fastc gi4	0	Needs <code>mod_fastcgi</code> being enabled for Apache
php_cgi4	1	
php_libph p5	0	If the value is other than 0, the value for <code>php_libphp4</code> has to be 0
php_fastc gi5	2	
php_cgi5	1	

Fastcgi Settings

Fastcgi (http://www.fastcgi.com/mod_fastcgi/docs/mod_fastcgi.htm), unlike the regular `cgi`, keeps the activated module e.g. `php` loaded for some time after the call. All further calls are carried out quicker that preserves time for programs being loaded. However, the number of programs that can be stored in the `fastcgi` operating memory is limited.

All programs loaded by `fastcgi` are performed with the privileges of the user who owns the corresponding virtual host. That is why they can only serve calls to this particular virtual host. This means that if all users will have `fastcgi`, this may cause considerable delays and enormous increase in server load.

We recommend selective approach to enabling `fastcgi`, i.e. after enabling it for heavily visited virtual hosts monitor the server load for several days. If after such monitoring the load is found permissible, enable `fastcgi` for more users and so on.

The same is with `fastcgi` parameters. They are set on the server level and can't be changed for a particular virtual host. There is not direct way to check effectiveness of these parameters - only indirect observance based on server operating. That is why change these parameters with precaution.

The prefix is `'fcgi_'`. Here is the list of possible settings:

Title	Default Value	Comments
<code>autoUpdate</code>		There may be a serious problem when this option is used with <code>-restart</code> .
<code>flush</code>	0	
<code>gainValue</code>	0.5	
<code>idle-timeout</code>	30 [seconds]	
<code>initial-env</code>	FCGI_ROLE	Allows to check which <code>fastcgi</code> setting is being used. RubyOnRails may need additional variables.
<code>init-start-delay</code>	1 [seconds]	
<code>killInterval</code>	300 [seconds]	
<code>listen-queue-depth</code>	100	
<code>maxClassProcesses</code>	10	It must be \leq to <code>-maxProcesses</code> (this is not programmatically enforced)
<code>maxProcesses</code>	50	It must be \geq to <code>-maxClassProcesses</code> (this is not programmatically enforced)
<code>minProcesses</code>	5	
<code>multiThreshold</code>	50	If only one instance remains, <code>singleThreshold</code> is used instead

pass-header		This option makes available the contents of headers which are normally not available (e.g. Authorization)
priority	0	
processSlack	5	
restart		Causes the process manager to restart dynamic applications upon failure (similar to static applications)
restart-delay	5 [seconds]	
singleThreshold	0	Changing this is not recommended (especially if -appConnTimeout is set)
startDelay	3 [seconds]	Must be less than <code>appConnTimeout</code> to be effective
updateInterval	300 [seconds]	

Apache Modules

The core of `hsphere-apache` contains only two modules: `http_core.c` and `mod_so.c`. The rest are compiled as DSO, and their list can be obtained by running:

- for Apache 1.3:

```
ls /hsphere/shared/apache/libexec/
```

- for Apache 2.2:

```
ls /hsphere/shared/apache2/modules/
```

Modules in different Apache versions may have distinction in their titles and configuration directives. Apache 2.2 lacks some modules present in 1.3 version, their functionalities being substituted by other modules, except for `mod_throttle` and `mod_frontpage` which are not supported in 2.2 version.

Compatibility of Apache 1.3 and 2.2 is achieved in Parallels H-Sphere via the `mod_macro` module. Apache 2.2 adds several new modules to extend functionality.

See below the comparative list of modules (the titles correspond to *.so files):

Apache 1.3	Apache 2.2
libphp4*	libphp4*
libphp5**	libphp5**
libproxy***	
libssl	mod_ssl

mod_access	
mod_actions	mod_actions
mod_alias	mod_alias
mod_asis	
mod_auth	
mod_auth_anon	
	mod_auth_basic
mod_auth_db	
mod_auth_dbm	mod_authz_dbm
	mod_auth_digest
mod_auth_external	mod_authnz_external
mod_auth_kerb	mod_auth_kerb
	mod_authn_anon
	mod_authn_dbd
	mod_authn_dbm
	mod_authn_default
	mod_authn_file
	mod_authz_default
	mod_authz_groupfile
	mod_authz_host
	mod_authz_owner
	mod_authz_user
mod_autoindex	mod_autoindex
	mod_cache
mod_cern_meta	mod_cern_meta
mod_cgi	mod_cgi
	mod_cgid
	mod_dav
	mod_dav_fs
	mod_dbd
mod_define	
	mod_deflate
mod_digest	
mod_dir	mod_dir
	mod_disk_cache
	mod_dumpio

mod_env	mod_env
mod_expires	mod_expires
	mod_ext_filter
mod_extract_forwar ded	mod_extract_forwar ded
mod_fastcgi	mod_fastcgi
	mod_filter
mod_frontpage	
mod_gzip	
mod_headers	mod_headers
	mod_ident
	mod_imagemap
mod_imap	
mod_include	mod_include
mod_info	mod_info
mod_log_agent	
mod_log_config	mod_log_config
mod_log_forensic	mod_log_forensic
mod_log_referer	
	mod_logio
mod_macro	mod_macro
mod_mem_cache	
mod_mime	mod_mime
mod_mime_magic	mod_mime_magic
mod_mmap_static	
mod_negotiation	mod_negotiation
mod_psoft_traffic	
mod_rewrite	mod_rewrite
mod_scgi	mod_scgi
mod_security	mod_security
	mod_security2
mod_setenvif	mod_setenvif
mod_speling	mod_speling
mod_status	mod_status
	mod_suexec
mod_throttle	
mod_unique_id	mod_unique_id
mod_userdir	mod_userdir

mod_usertrack	mod_usertrack
	mod_version
mod_vhost_alias	mod_vhost_alias

Notes:

*Part of the `hsphere-php5-Xx-<PHPVER>` package where X is apache version (1 or 2).

**Part of the `hsphere-php4-Xx-<PHPVER>` package where X is apache version (1 or 2).

***This module provides for an HTTP 1.1 caching proxy server.

Apache Configuration

Apache 1.3	Apache 2.2
/hsphere/shared/apache	/hsphere/shared/apache2
Comments: Apache home directory	
/hsphere/local/config/httpd	/hsphere/local/config/httpd2
Comments: Apache configuration directory	
~httpd/conf -> /hsphere/local/config/httpd	
Comments: The symlink from home directory	
Configuration File	
/hsphere/local/config/httpd/httpd.conf	/hsphere/local/config/httpd2/httpd.conf
Comments: This file contains server wide configuration (modules enabled, their parameters set etc.). We don't recommend that changes are made to this file. When Apache modules are enable/disable from the interface, the configuration files are left unchanged. This interface feature is implemented via the comand line Apache using <code><IfDefine ...></code> directives and corresponding global symbols. These files are customized using config file templates. More on config file template customization read in Appendix C of Parallels H-Sphere Installation Guide.	
Custom Configuration File	
/hsphere/local/config/httpd/custom.conf	/hsphere/local/config/httpd2/custom.conf
Comments: We recommend that this file is used for making changes to the wide configuration, and for enabling additional modules in particular. This may facilitate finding configuration errors in case the server cannot start. When Apache is launched, the custom configuration file is the second to be processed after <code>httpd.conf</code> . After that, virtual hosts configuration is picked up.	

System Virtual Hosts Config	
/hsphere/local/config/httpd/namev h.conf	/hsphere/local/config/httpd2/namev h.conf
<p>Comments: This file contains list of all system (not user!) virtual hosts. Apache supports virtual host of 3 types - name- based, IP-based and port-based. Parallels H-Sphere uses name-based virtual hosts by default but the other types can be used as well. The configuration file contains information on host type for each IP. This file is processed after <code>custom.conf</code> but before processing the configuration of virtual hosts.</p>	
Virtual Hosts (Logical Servers) Configs	
/hsphere/local/config/httpd/conf/ lservers/ mail.conf, mrtg.conf, mysql.conf...	/hsphere/local/config/httpd2/conf/ lservers/ mail.conf, mrtg.conf, mysql.conf...
<p>Comments: For each logical server a virtual host is created. Before, when accessing the box by its logical name it was possible to view, for instance, sources of phpMyAdmin. Now with each logical name having its own virtual host such a possibility is eliminated. These files are customized using templates. More on config file template customization read in Appendix C of Parallels H-Sphere Installation Guide.</p>	
/hsphere/local/config/httpd/sites/	
<p>Comments: This directory contains files for user virtual hosts. A link to this directory is included to the configuration directory of Apache 2.2. This means that configuration files of user virtual host are common for the two Apache versions. Syntactical differences in directives between 1.3 and 2.2 versions are leveled by <code>mod_macro</code> module introduced in Parallels H-Sphere 3.1 and up, i.e. macros are used instead of configuration directives. <code>mod_macro</code> is a third-party module to the Apache Http Server distributed with a BSD-style license like Apache. It allows the definition and use of macros within Apache runtime configuration files. The syntax is a natural extension to apache html-like configuration style. Macros are placed to <code>./macro</code> of the Apache configuration directory. Macros for Apache 1.3 are different from those for Apache 2.2.</p>	

Web Statistics Software

Apache 2.2.x

General web statistics is gathered using general `mod_log_config` and `mod_logio` modules. `mod_log_config` is patched to provide logging to the server log even if custom logs are redefined at the virtual host level. For this purpose, `AlwaysServerLogs` directive is added.

Apache 1.3.x

General web statistics is gathered using the `mod_psoft_traffic` apache module.

Apache Logs and Web Traffic Calculation in Parallels H-Sphere

Apache logs are located in the `/hsphere/local/var/httpd/logs/` directory. Also, each hosted Web domain has its own logs in the `/hsphere/local/home/<user>/logs/<domain.name>/` directory (see Web traffic calculation (on page 133)).

There are two types of Web traffic calculation in Parallels H-Sphere:

- third-party traffic calculation - Parallels H-Sphere writes traffic log files to each domain's directory to make them available for third-party log analyzers: Webalizer, Modlogan, and AWStats
- Parallels H-Sphere built-in traffic calculation - Parallels H-Sphere provides its own mechanism of traffic calculation used in billing.

Please refer to a separate section on Web traffic calculation and log rotation (on page 133).

Log Rotate Config File

`/hsphere/local/config/httpd/rotatelog.cfg` - log rotate config file which includes all log confs located in the `/hsphere/local/config/httpd/logrotate_conf/` directory:

- `<domain.name>.transferlog.conf` - config file for transfer log rotation for a domain
- `<domain.name>.errorlog.conf` - config file for error log rotation for a domain
- `<domain.name>.agentlog.conf` - config file for agent log rotation for a domain
- `<domain.name>.referrerlog.conf` - config file for referrer log rotation for a domain

Apache Suexec

Parallels H-Sphere WebBox Apache suexec is configured to run users' CGI scripts only within the `/hsphere/local/home/` directory, recursively. Thus, a user may run his/her own cgi scripts only if he/she has fourth nesting level within the Parallels H-Sphere user home directory, for example, `/hsphere/local/home/user_home1`.

Parallels H-Sphere PHP

PHP is assembled into separate Parallels H-Sphere packages:

Package	Description
<code>hsphere-php4-1x-<vesion></code>	libphp4 for Apache 1.3.x
<code>hsphere-php4-2x-<vesion></code>	libphp4 for Apache 2.2.x
<code>hsphere-php4-cgi-<vesion></code>	CLI and CGI php4 binaries
<code>hsphere-php4-pear-<vesion></code>	PEAR for PHP4
<code>hsphere-php4-plugins-<vesion></code>	Set of plugins, their confs, which may work in pair with CLI, CGI or libphp4
<code>hsphere-php5-1x-<vesion></code>	libphp5 for Apache 1.3.x
<code>hsphere-php5-2x-<vesion></code>	libphp5 for Apache 2.2.x
<code>hsphere-php5-cgi-<vesion></code>	CLI and CGI php4 binaries
<code>hsphere-php5-pear-<vesion></code>	PEAR for PHP5
<code>hsphere-php5-plugins-<vesion></code>	set of plugins, their confs, which may work in pair with CLI, CGI or libphp5

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Configuring PHP from the Interface

In Parallels H-Sphere 3.1+ administrators have more capacity in configuring PHP while users can choose between PHP 4 and 5. Please refer to the section on Apache in Parallels H-Sphere 3.1+ (on page 375) where this functionality is described.

PHP Components

Ldap

Ldap support has been included to php-core, which is one of the reasons why horde may start to slow down when sending mail. It happens because horde is trying to connect to available ldap servers that are very slow by themselves.

Pear

Another important peculiarity of the new PHP packages is support of pear. To view which packages from pear repository have been installed, run:

```
/hsphere/shared/phpX/bin/pear list
```

To view the list of all pear packages available in the repository, run:

```
pear list-all
```

To check which pear packages need to be upgraded, run:

```
pear list-upgrades
```

To upgrade all pear packages installed, run:

```
pear upgrade-all
```

Pecl

As for the PECL repository, 2 packages from it (Fileinfo and SQLite) have been included to PHP4 and one (Fileinfo) to PHP5. In PHP5, SQLite is supported from php-core.

Objects in PHP 5

PHP5 has undergone some principal changes in the way it works with objects. That is why some programs that work fine with PHP4 may not work with PHP5. To ensure PHP5 support, all third-party products included to Parallels H-Sphere have been updated to the latest available version.

PHP Test Page

New PHP packages have been assembled to perfectly fit mail web-interfaces, and horde in particular. This means that PHP test page can be obtained from http://<box_IP>/horde/test.php. Here, pay attention to `memory_limit` value. We recommend that it is either -1 (disabled) or 8 MB.

Customizing php.ini Configuration File

If you want to customize PHP config files for PHP 4 and PHP 5, please refer to Appendix C. Customizing Server Configuration Files By Means of Templates of Parallels H-Sphere Installation Guide.

PHP Modules Installed with Parallels H-Sphere PHP Packages

Standard PHP Installation has the following modules enabled:

PHP extensions	php4		php5	
	before 4.4.4	4.4.4+	before 5.1.6	5.1.6+

bcmath	so	so	so	so
bz2	so	core	so	core
calendar	so	so	so	so
ctype	core	core	core	core
curl	so	so	so	so
date	-	-	core	core
dba	core	core	core	core
dbase	so	so	so	so
dbx	so	so	-	-
dom	-	-	core	core
domxml	so	so	-	-
exif	so	so	-	so
fileinfo	so	so	so	so
filepro	so	so	so	*
ftp	so	core	so	core
gd	so	core	so	core
gettext	so	core	so	core
gmp	so	so	so	so
hash	-	-	core	core
iconv	so	so	so	so
imap	so	so	so	so
ldap	core	so	core	so
libxml	-	-	core	core
mbstring	core	core	core	core
mcal	so	so	-	*
mcrypt	so	core	so	core

mhash	so	core	so	core
mime_magic	core	core	core	core
mnogosearch	so	so	so	so
mysql	so	so	so	so
mysqli	-	-	-	so
ncurses	so	so	so	so
odbc	so	so	so	so
openssl	core	core	core	core
overload	core	core	-	*
pcntl	so	so	so	so
pdf	so	so	-	-
pcre	core	core	core	core
PDO	-	-	core	core
pgsql	so	so	so	so
posix	core	core	core	core
pspell	so	so	so	so
Reflection	-	-	core	core
session	core	core	core	core
shmop	so	so	so	so
SimpleXML	-	-	core	core
soap	-	-	so	so
sockets	core	core	so	core
SPL	-	-	core	core
sqlite	so	so	core	so
standard	core	core	core	core
swf	removed	-	-	-

sysvmsg	so	so	so	so
sysvsem	so	so	so	so
sysvshm	so	so	so	so
tokenizer	core	core	core	core
xml	core	core	core	core
xmlrpc	so	so	so	so
xmlreader	-	-	core	core
xmlwriter	-	-	core	core
xsl	-	-	core	core
xslt	so	so	-	-
yp	so	so	-	*
zip	so	core	-	-
zlib	core	core	core	core

Detailed information on PHP modules find in PHP Manual,
<http://www.php.net/manual/en/>

Notes:

- **mcal** extension has been moved to the PECL repository (<http://pecl.php.net/>) and is no longer bundled with PHP as of version 5.0.0.
- **yp** extension has been moved to the PECL repository and is no longer bundled with PHP as of version 5.1.0.
- **filepro** extension has been moved to the PECL repository and is no longer bundled with PHP since version 5.2.0.
- **overload** extension: see the page <http://www.php.net/manual/en/language.oop5.overloading.php> for more information.

PHP Modules Default Location

To check php modules default location, run:

```
# /hsphere/shared/php/<PHPVERSION>/bin/php-config --extension-dir
```

This directory is linked to hsphere catalogue structure
/hsphere/shared/apache/libexec/php<PHPVERSION>ext

To list installed so-modules, run:

```
# ls /hsphere/shared/apache/libexec/php<PHPVERSION>ext/*.so
```

Enabling/Disabling PHP Modules

Modules are added one by one with ini-files of the same name that can be found in
/hsphere/local/config/httpd/php<PHPVERSION>/php.d

If an ini-file contains `extension=extname.so` line, php at startup loads a corresponding extension module. Mind, any text following an unquoted semicolon ";" is ignored, thus the module indicated in the line; `extension=extname.so` won't load.

At updates coming after hsphere-php4-4.4.4-2 ini-files are not overwritten (as in earlier versions), but remain unchanged. Only for extensions that do not have corresponding ini-file, ini-files are created according to the procedure above.

php.info

php.info gathers info on php core, modules, apache environment etc. You can run it as console command:

```
/hsphere/shared/php4/bin/php-cli -i |less
```

or screen its output at http://<box_ip>/hsphpinfo.php

Configuring PHP Safe Mode

Important: PHP safe mode is not supported, you can use it at your own risk.

PHP safe mode is turned off by default in the original Parallels H-Sphere configuration.

To turn it on, set `safe_mode=On` in the `php.ini` file (usually, in the `/usr/local/lib` directory). Please note that `php.ini` must be customized by means of the respective custom config file template.

➤ **To use default Parallels H-Sphere configuration for PHP with safe mode on:**

- 1 Take the default `php.ini` installed with standard Parallels H-Sphere PHP packages.
- 2 Turn the safe mode on.
- 3 Copy that file to the PHP installation directory (usually, `/usr/local/lib`).

Read more on PHP safe mode configuration in PHP documentation (<http://www.php.net/manual/en/features.safe-mode.php#ini.safe-mode>).

To turn the safe mode off for an individual account, edit/add the following directives in the `/hsphere/local/config/httpd/httpd.conf` Apache configuration file on the Web server.

```
<Directory /hsphere/local/home/wwwuser>
  <IfModule mod_php4.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule>
  <IfModule mod_php5.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule>
</Directory>
```

To have IMP Horde web mail (on page 150) working when the safe mode is on, set the following directive in `/hsphere/local/config/httpd/httpd.conf` on the Web server and make changes in the respective custom configuration file template):

```
<Directory /hsphere/shared/apache/htdocs/horde>
  <IfModule mod_php4.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule>
  <IfModule mod_php5.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule>
</Directory>
```

To configure Webshell 4 (on page 126) so that it would work with the safe mode globally on:

```
<Directory /hsphere/shared/apache/htdocs/webshell4>
  <IfModule mod_php4.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule>
  <IfModule mod_php5.c>
    php_admin_flag safe_mode off
    php_admin_value upload_tmp_dir "/tmp"
    php_admin_value session.save_path "/tmp"
  </IfModule></Directory>
```

Restart Apache (on page 55) after performing necessary modifications.

Adding PHP Extensions

PHP 4 and PHP 5 packages include almost all commonly used extensions. So, before you start re-compiling PHP, make sure that an extension you need to add is indeed absent. See the list of modules included in PHP 4 and PHP 5 (on page 388).

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Adding PEAR Modules	395
Adding PECL Modules	395
Enabling/Disabling Built-in PHP Modules	396

Compilation Requirements

Before the compilation, check that the following libraries are installed:

- autoconf
- automake
- libtool
- zlib-devel
- mysql-devel
- postgresql-devel

Other required libraries are listed in the documentation to respective modules.

Please also take into account that PHP 4 and PHP 5 have different module structures. For example, the domxml module of PHP 4 is absent in PHP 5.

Adding New Extensions

PHP packages are built from modules. To include a new module, use `phpize` in the following way:

```
# tar zxf your_module.tgz
# cd your_module
# /hsphere/shared/php4/bin/phpize
# ./configure --with-php-config=/hsphere/shared/<PHPVERSION>/bin/php-config
# make
# make install
```

`<PHPVERSION>` is `php4` or `php5`, depending on PHP version.

To find out where a new extension is compiled to and where all other PHP extensions are located, run:

```
# /hsphere/shared/<PHPVERSION>/bin/php-config --extension-dir
```

Also you can use additional options in configuration string, for example:

```
./configure --with-php-config=/hsphere/shared/php4/bin/php-config --with-mssql=/usr/local/freetds --enable-msdblib
```

Adding PEAR Modules

To install PEAR modules, run:

```
# /hsphere/shared/<PHPVERSION>/bin/pear install your_module
```

Read the PEAR Command line installer

(<http://pear.php.net/manual/en/installation.cli.php>) documentation for details.

Adding PECL Modules

PECL modules can be installed either by `phpize` or by `pear`. See Installation of PECL extensions (<http://www.php.net/manual/en/install.pecl.php>) in PHP Guide.

Enabling/Disabling Built-in PHP Modules

Modules that are installed with PHP packages are enabled by default.

➤ **To disable (or enable) a module:**

- 1 Go to the directory where respective .ini file for a module is located:

```
# cd /hsphere/local/config/httpd/<PHPVERSION>/php.d/
```

Here, **<PHPVERSION>** is php4 or php5.

- 2 Open the **<module_name>.ini** file for edit. See the list of PHP modules (on page 388).
- 3 Comment the line `extension=<module_name>.so` to disable the module:

```
; extension=<module_name>.so
```

Uncomment this line to enable the module.

- 4 Restart Apache (on page 55) on the Web server to apply changes.

Parallels SiteStudio Packages

Parallels SiteStudio is installed in two separate Parallels H-Sphere packages:

- `hsphere-sitestudio-core-<version>`

`hsphere-sitestudio-templates-<version>` To install Parallels SiteStudio packages, go to `/hsphere/install` and run:

```
make ss-install
```

This command launches the script which downloads and installs the necessary packages (e.g. `xorg-x11-libs`) and then installs Parallels SiteStudio.

Imaker is run under the `imaker` user (not `root`!).

If previous Parallels SiteStudio version was installed from a `.tgz` archive, the new one is installed over it without uninstalling the older version.

Load Balancing

It is possible to add **load balanced** (LB) Web and mail clusters to Parallels H-Sphere. **Load balancing** implies balancing server traffic amongst multiple computers (LB cluster) which Parallels H-Sphere regards and operates with as a single server.

Load balanced cluster solution in Parallels H-Sphere requires 4 or more physical servers:

- Load Balancer: any solution like Citrix® NetScaler (<http://www.citrix.com/English/ps2/products/subfeature.asp?contentID=22314>) for balancing traffic across the web/mail servers. Load Balancer directs traffic to another server if the first one is currently overloaded. It can also allow the service to continue even if one of the servers is down.
- One master and one or more slave servers form a load balanced Web/mail cluster. All these servers are being added to Parallels H-Sphere as physical servers, with all related packages installed, but Parallels H-Sphere logical servers are created only on master servers, and Parallels H-Sphere operates with load balanced cluster only via master server.
- NAS (Network Attached Storage): shared storage for master and slave servers. NAS is a highly reliable server with enough space for storing data. Web/mail content directories are mounted to the NAS where the content is actually stored. Web and mail servers can jointly use one NAS or have their own NAS for Web and for mail.

Figure 1: Simple Load Balanced system with one Web cluster.

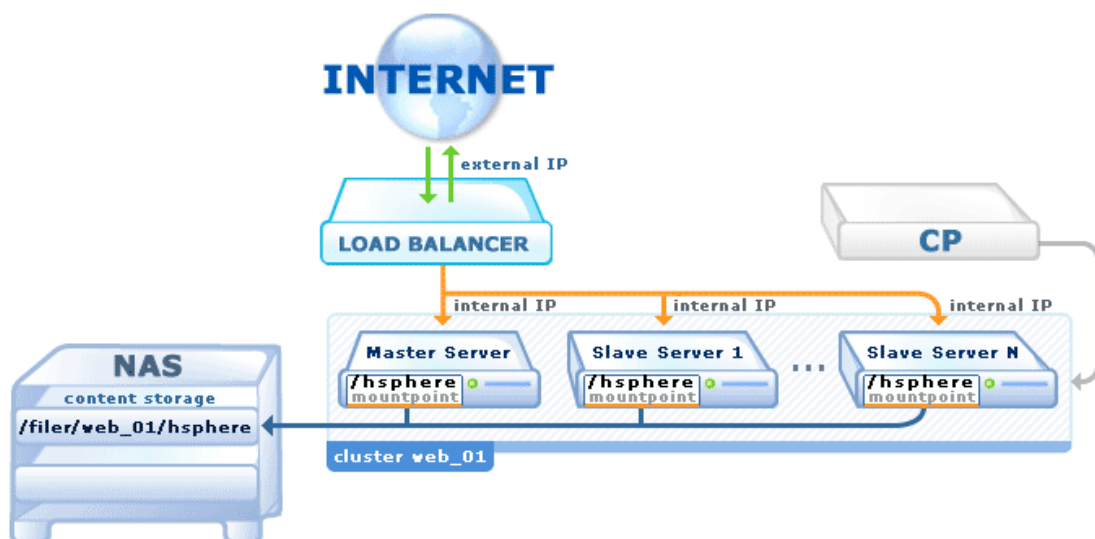
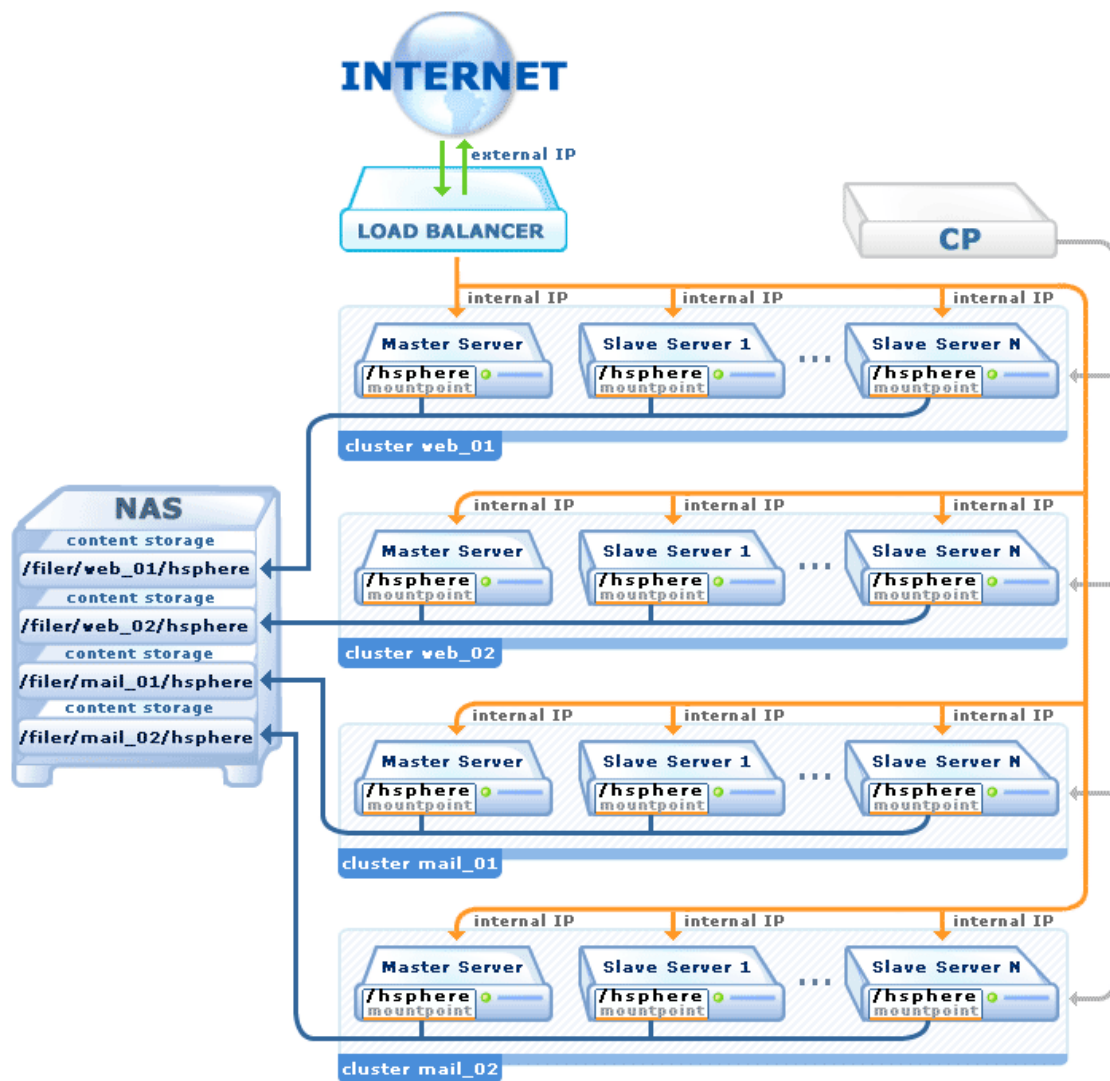


Figure 2: More complex Load Balanced system with two mail and two web clusters:



Load Balancers

You need to purchase, install and configure any load balancer solution, for example, Citrix® NetScaler

(<http://www.citrix.com/English/ps2/products/subfeature.asp?contentID=22314>).

This task is beyond the scope of Parallels H-Sphere documentation.

Supported NAS

The following file storage systems (on page 415) are supported by Parallels H-Sphere:

NAS	Notation	Supported in Parallels H-Sphere
Generic Linux NFS (on page 406)	UNIX	3.0 RC 1 and up
RedHat GFS (on page 406)	UNIX	3.0 RC 4 and up
NetApp (http://www.netapp.com/products/filer/)	NET_APP	2.3 and up to 2.5 3.0 RC 1 and up
BlueArc (http://www.bluearc.com/)	BLUE_ARC	2.4.3 Patch 10 and up 2.5 Beta 5 and up
EMC Celerra (http://www.emc.com/products/networking/servers/index.jsp)	EMC_CELERRA	2.4.3 Patch 10 and up 2.5 Beta 5 and up

Note: All Parallels H-Sphere customers will be recommended to choose shared Linux NFS as the most simple and reliable solution.

Load Balanced Cluster

Load balanced cluster consists of one master and one or more slave servers regarded by Parallels H-Sphere as a single server.

- Master and slave servers are added to Parallels H-Sphere as physical servers.
- Master-slave relations between these servers are set in admin CP.
- Only master server is added as Web/mail logical server to Parallels H-Sphere. CP communicates only with master server.

- Requests are passed to external IPs routed by the load balancer. Load balancer distributes requests evenly across the master and slave servers (internal IPs corresponding to external IP). For this purpose, NAT must be properly configured on load balanced cluster servers.
- Master and slave server share the same Parallels H-Sphere related directories where all user content, scripts, and the majority of Parallels H-Sphere related binaries are located. These directories are actually stored on the NAS and mounted from master and slave servers via NFS.
- Along with shared storage, master and slave servers have their own unique IP-specific logs and configs which are synchronized by special cron scripts run on these servers.

See load balanced cluster scheme with generic Linux NFS shared storage (on page 400).

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Installing Load Balanced Web/Mail Clusters in Parallels H-Sphere	406
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Implementation of Load Balanced Cluster in Parallels H-Sphere

This section describes load balanced Web/mail cluster scheme for generic Linux NFS (on page 406) NAS.

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Load Balanced Cluster in CP

- Master and slave servers are added to Parallels H-Sphere as physical servers.
- Master-slave relations between these servers are set in admin CP.
- Only master server is added as Web/mail logical server to Parallels H-Sphere. CP communicates only with master server.

Distribution of Requests Across Load Balanced Cluster

Parallels H-Sphere regards Web or mail load balanced cluster as a single server. Requests are passed to external IPs routed by the load balancer. Load balancer distributes requests evenly across the master and slave servers (internal IPs corresponding to external IP).

Shared Content

Master and slave servers share the same `/hsphere` directory mounted by NFS to the `/filer/<cluster_type>_<cluster_id>/` directory on the NAS where load balanced cluster content is actually stored. Here, `<cluster_type>` is mail or web, and `<cluster_id>` is cluster id - there may be multiple load balanced clusters mounted to the NAS: 01, 02, ... (See the illustration (on page 397) for 2 Web and 2 mail clusters.)

All user content, scripts, and the majority of Parallels H-Sphere related binaries are installed into the `/hsphere` directory and shared by master and all slaves.

Follow the Adding Load Balanced Clusters on Shared Linux NFS (on page 406) instructions to learn how to correctly mount the shared storage on the NAS to the master and slave servers.

Specific Master/Slave Content

Along with the common shared storage, master and slave servers have their own Parallels H-Sphere specific (Apache, FTP) and IP-dependent (network) logs and configuration:

- Both master and slave servers have unique Apache logs stored locally in the `/var/log/hsphere/httpd` directory instead of the default `/hsphere/local/var/httpd/logs` directory.
- On the master server, Apache, FTP and network configuration is located in the `/hsphere` directory (which is a mountpoint to the NAS and is common for the master and the slave servers):
`/hsphere/local/config/httpd/`
`/hsphere/local/config/ftpd/`
`/hsphere/local/network/`

On slave servers, however, this data is unique and is stored locally in the `/etc/hsphere` directory:

```
/etc/hsphere/httpd/  
/etc/hsphere/ftpd/  
/etc/hsphere/network/
```

Parallels H-Sphere updater running with the `hspackages slaves=web|mail|all` option creates the `/etc/hsphere` directory data on slave servers.

Synchronization Between Master and Slave Servers

The special cron script `/hsphere/shared/scripts/cron/lb_sync.sh` runs each minute on each slave server to synchronize data on master and slave servers. It parses and synchronizes:

- User Apache/ProFTPd config files
`/etc/hsphere/[httpd|ftpd]/sites/*.conf`, and
`/etc/hsphere/network/ips`
- the `/etc/passwd`, `/etc/shadow`, `/etc/group` files.

Traffic Calculation

User logs are located in the `/hsphere/local/home/<user>/logs/domain.com/` directory. On master server, log filenames look like:

```
{domain.name}
referrer_log
access_log
error_log
```

Slave servers write the following logs:

```
{domain.name}_SRV-N
referrer_log_SRV-N
access_log_SRV-N
error_log_SRV-N
```

where N is slave server id: 1, 2, ...

The `/hsphere/shared/scripts/cron/cron-rotate.pl` script has been adapted to calculate statistics on load balanced cluster. It runs on master and slave servers by the following scheme:

- **on slave servers** (e.g., 1:30am):
 - synchronizes logrotate conf files on master and slaves: It parses log rotate configs in the `/hsphere/local/config/httpd/logrotate_confs/` directory on the master server. They point to the user logs located in the `/hsphere/local/home/<user>/logs/domain.com/` directory. On master server, log filenames look like:


```
{domain.name}
referrer_log
access_log
error_log
```
 - Slave servers write the following logs:


```
{domain.name}-SRV-N
referrer_log-SRV-N
access_log-SRV-N
error_log_SRV-N
```
 - where N is slave server id: 1, 2, ... `cron-rotate.pl` merges data and synchronizes respective master and slave logs.
- rotates logs on slave servers
- restarts Apache
- **on master server** (e.g., 2:00am):
 - rotates logs on the master
 - restarts Apache
 - merges master and slave logs
 - launches log analyzers (Webalizer, AWStats, ModLogAn)

Load Balanced Cluster Map

The following two files construct load balanced cluster map. At the moment, they need to be created manually on master and slave servers:

- **/hsphere/local/config/lb.map** - created on the master server and has the following format:

```
<Master_IP> | <Slave1_IP> | . . . | <SlaveN_IP>
```

The lines of the same format should be also added for each dedicated IP bound on the cluster:

```
<Master_Dedicated_IP> | <Slave1_Dedicated_IP> | . . . | <SlaveN_Dedicated_IP>
```

- **/etc/hsphere/lb.id** - created on both the master and slave servers and contains the following line:

```
<CLUSTER_TYPE> | <SERVER_ID>
```

where **<CLUSTER_TYPE>** is mail or web; **<SERVER_ID>** is LB server id: 0 for master, 1 for the first slave, 2 for the second slave, etc.

For example, for slave server with **<Slave2_IP>** in LB Web cluster the lb.id file will look like:

```
web | 2
```

NAT Configuration for Load Balanced Clusters

To configure load balanced Web/mail cluster with NAT, you must have NAT turned on (on page 28) in Parallels H-Sphere and put external Web/mail server IP routed by the Load Balancer into correspondence with the master server's internal IP.

For example, for a load balanced Web cluster with one master and 4 slave servers, where the master Web server's internal IP `192.168.0.100` corresponds to the external IP `12.34.56.100` bound to the Load Balancer.

- In the `~cpanel/shiva/psoft_config/ips-map.xml` file on the CP server there should be the following record:

```
<ips>
. . .
  <ip ext="12.34.56.100" int="192.168.0.100"/>
. . .
</ips>
```

- All dedicated IPs on the master server must be also associated with corresponding IPs on the Load Balancer and similar records must be added to the `ip-map.xml` file:

```
<ip ext="LB_Dedicated_IP" int="Master_Dedicated_IP"/>
```

- Also, you should have external IP in the **E.Manager -> DNS Manager -> Service Zone** menu in admin CP. For example:

```
www.test.com 3600 IN A 12.34.56.100
mail.test.com 3600 IN MX 12.34.56.111
```

Load Balancing Support in Parallels H-Sphere

This document explains functionality of the scripts that enable distribution of load balance between Apache and Virtual FTP servers.

- **apache-confsynch.pl** accounts for synchronization of Apache config files on slave servers. Amount of slave servers and their IDs are set at master server in the `/hsphere/local/config/slaves.conf` file. The script, also, creates `need_restart.txt` on each slave to mark it as liable to restart.
- **apache-need-restart.pl** runs on slave servers, checks if `need_restart.txt` is available there and marks them as liable to restart. In other words this script servers as a layer between LB apache restart and standard apache-restart.
- **apache-reconfig.pl** is a modification of a standard apache-reconfig script/file(?) that is executed on slaves and is only different from it in that it sets required level of restart for slaves (either gracefull or force).
- **apache-repair.pl** is a modification of a standard apache-repair.pl script and is only different in that it sets exclusive lock for `/etc/passwd`, `/etc/shadow`, `/etc/groups` so to ensure these files are not locked by rsync and so a user can be started. Otherwise, all files will be marked as bad.
- **ftp_anlz.pl** gathers and analyses statistics
- **ftp_anlz_user.pl** gathers and analyses user statistics.
- **ftp-confsynch.pl** accounts for the same as apache-confsynch.pl on Virtual FTP servers.
- **ftp-need-restart.pl** accounts for the same as apache-need-restart.pl on Virtual FTP servers.
- **ftp-restart.pl** is the same as Apache, but for Virtual FTP
- **master-ipsynch.pl** runs on a master server and formats data for slave servers so IPs are up according to IP mapping set in the `/hsphere/local/config/map_table.txt` file on each slave.
- **slave-ipupdate.pl** puts up IPs formed by the `master-ipsynch.pl` script.

As of now Apache and Virtual FTP config files synchronization is executed on master server, yet it is expected to be moved onto slave servers.

Installing Load Balanced Web/Mail Clusters in Parallels H-Sphere

Load balanced cluster solution requires 3 or more physical servers:

- **Load Balancer:** any solution like Citrix® NetScaler (<http://www.citrix.com/English/ps2/products/subfeature.asp?contentID=22314>) for load balancing across the web/mail servers. Load Balancer directs traffic to another server if the first one is currently overloaded.
 - **NAS (aka Filer):** Server/client shared storage solution for web/mail content. NAS may be installed on the same server with load balancer or on a separate server. Also, Web and mail servers can jointly use one NAS or have their own NAS one for Web and one for mail. In this documentation we consider the following NAS's:
 - Generic Linux NFS
 - NetApp Filer hardware
 - RedHat GFS
 - At least two boxes (**master** and **slave**) for web/mail servers. Load balanced solution implies one master server and one or more slave servers.
- **To create Web/mail load balanced clusters integrated into Parallels H-Sphere:**
- 1 Install and configure Load Balancer (on page 407)
 - 2 Prepare NAS (on page 408)
 - 3 Prepare master and slave Web/mail boxes (on page 412)
 - 4 Install Parallels H-Sphere to load balanced Web/mail clusters (on page 414)

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Step 3. Prepare Master and Slave Web/Mail Boxes.....	412
Step 4. Install Parallels H-Sphere to Load Balanced Parallels H-Sphere Clusters	414

Step 1. Install and Configure Load Balancer

Purchase, install and configure load balancer solution like Cytrix® NetScaler.

Step 2. Prepare NAS

Follow procedures below for:

- NetApp hardware (on page 406)
- Linux NFS shared storage (on page 406)
- RedHat GFS (on page 406)

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NetApp Hardware

- 1 Purchase NetApp NAS from www.netapp.com, install and configure the NAS according to the NetApp Documentation (<http://www.netapp.com/products/filer/>). Create volumes/qtrees on the box where NetApp NAS is to be installed.
- 2 Configure your NetApp NAS to add load balanced cluster in Parallels H-Sphere (read the NetApp Manual at <http://ecserv1.uwaterloo.ca/netapp/man/> for commands):

1. Telnet to the NetApp NAS:

```
telnet <NAS_IP>
```

Here, <NAS_IP> is the NetApp NAS IP.

2. Get the list of the NAS partitions with the qtree command:

```
# qtree
```

3. To enable disk quota management, export the /etc directory on the NetApp NAS and allow to mount it only from the CP box:

```
# exportfs -o access=<CP_IP>,root=<CP_IP>,rw=<CP_IP> /etc
```

Here, <CP_IP> is the CP server IP.

4. To enable user disk space management on the web/mail servers, export the user storage directory on the NetApp NAS allow to mount it from the physical web/mail boxes:


```
# exportfs -o
access=<Master_IP>:<Slave1_IP>[:<Slave2_IP>:...],root=<Master_IP>:<Slave1_IP>[:...],rw=<Master_IP>:<Slave1_IP>[:...]
<NAS_WebPath>
```

Here, **<Master_IP>:<Slave1_IP>[:<Slave2_IP>:...]** is the list of master and slave web/mail server IPs separated with colon (:), **<NAS_WebPath>** is the user storage directory.

5. Exit telnet session on the NetApp NAS.

3 Prepare NetApp NAS to Work With Parallels H-Sphere

1. Grant rsh access to the NetApp NAS from the CP box to root and cpanel user.
2. Grant nfs access to the /etc directory for the CP box in rw mode.
3. Grant nfs access to the home directory on the storage partition (e.g., /vol/vol0/home) for the CP box in rw mode with root privileges (e.g., - access=192.168.0.9:192.168.0.10, root=192.168.0.8:192.168.0.9:192.168.0.10).
4. On CP server, set the QUOTA_MANAGER property in ~cpanel/shiva/psoft_config/hsphere.properties to support NetApp quota manager on LB cluster:

```
QUOTA_MANAGER = NET_APP
```

More about external quota manager support in Parallels H-Sphere (on page 415).

Generic Linux NFS

Important: For correct load balanced cluster implementation, NFS must be of version 3.

- 1 Login as root to a new Linux server assigned for NAS and create a separate partition for shared file storage. This partition must be on a separate hard drive on a separate controller and must not be /var or /usr. We recommend naming it /filer to avoid possible confusion.
- 2 Install/update the quota-3.x package from the following location:

```
# rpm -Uvh
http://download.hsphere.parallels.com/shiv/HS/<OSCODE>/sysutils/quota-3.xx-x.i386.rpm
```

where **<OSCODE>** is a mnemonic code for operating system supported by Parallels H-Sphere (see OSCODE notation in Appendix D of Parallels H-Sphere Update Guide).

Important: The quota package includes NFS support, which is essential for load balanced cluster implementation. Generic quota package has NFS support disabled by default!

- 3 Add the "usrquota" option to the /filer partition in /etc/fstab:

```
LABEL=/filer /filer ext3 defaults,usrquota 1 1
```

To apply changes, run:

```
# mount -o remount /filer
# quotacheck -m /filer
```

```
# quotaon /filer
```

- 4 On the `/filer` partition, create directories for load balanced cluster file storage:

```
# mkdir -p /filer/<CLUSTER_TYPE>_<CLUSTER_ID>/hsphere
```

where **<CLUSTER_TYPE>** is web or mail, and **<CLUSTER_ID>** is a cluster id (there may be multiple clusters mounted to the same NAS).

For example, for the first Web cluster it will be `/filer/web_01/hsphere`.

- 5 Stop all services except ssh, portmap, and nfs related services. Check the status by the `chkconfig` command:

```
# chkconfig --list
```

- 6 To enable user disk space management on the web/mail servers, export the user storage directory on the generic Linux NAS. For this, add the following lines for all clusters to the `/etc/exports` file on the NAS server:

```
/filer/<CLUSTER_TYPE>_<CLUSTER_ID>/hsphere
<Master_IP>(rw,async,no_wdelay,insecure,no_root_squash)
/filer/<CLUSTER_TYPE>_<CLUSTER_ID>/hsphere
<Slave1_IP>(rw,async,no_wdelay,insecure,no_root_squash)
/filer/<CLUSTER_TYPE>_<CLUSTER_ID>/hsphere
<Slave2_IP>(rw,async,no_wdelay,insecure,no_root_squash)
...
```

To apply changes, run:

```
# exportfs -a
```

- 7 *Skip this step for mail server clusters.*

Edit the `/etc/init.d/nfs` file. Find the line with daemon `rpc.rquotad` and add the `-S` option to the end of the line, like this:

```
daemon rpc.rquotad $RPCRQUOTADOPTS -S
```

After that, restart NFS:

```
# chkconfig --level 345 nfs on
# /etc/init.d/nfs restart
```

Important: NFS configuration on the NAS may differ depending on the hardware parameters, the number of clusters, quota and load on the servers. To properly configure NAS please refer to the following guides:

<https://www.redhat.com/f/pdf/rhel4/NFSv4WP.pdf>
<http://www.citi.umich.edu/projects/nfs-perf/results/cel/dnlc.html>
<http://www.oreilly.com/catalog/nfs2/chapter/ch15.html>

RedHat GFS

➤ To prepare NAS for RedHat GFS filer (<http://www.redhat.com/software/rha/gfs/>):

- 1 Install and configure RedHat GFS cluster on a filer according to the following documentation:

<http://www.redhat.com/docs/manuals/csgfs/browse/rh-gfs-en/index.html>

<http://www.redhat.com/docs/manuals/csgfs/browse/rh-cs-en/index.html>

<http://www.tldp.org/HOWTO/LVM-HOWTO/index.html>

- 2 Setup GFS file system type on a logical volume on the filer, like this:

```
# gfs_mkfs -p lock_type -t cluster_name:gnbd_device -j 2
/dev/vg_name/lv_name
```

where `lock_type` is a GFS locking type, `cluster_name` is a GFS cluster name, `gnbd_device` is a GNBD device name, `vg_name` is a volume group name, and `lv_name` is a logical volume name. Further on in the document we will use the following example:

```
# gfs_mkfs -p lock_dlm -t alpha_cluster:gfs1 -j 2
/dev/vg01/lv01
```

- 3 Start GNBD server:

```
# gnbd_serv
```

Upon successful start, you'll get the following output:

```
gnbd_serv: startup succeeded
```

- 4 Export logical volume with GFS file system:

```
# gnbd_export -d /dev/vg01/lv01 -e nfs1
```

You should get the following output:

```
gnbd_clusterd: connected
gnbd_export: created GNBD nfs1 serving file /dev/vg01/lv01
```

Step 3. Prepare Master and Slave Web/Mail Boxes

Before you install Parallels H-Sphere packages to master and slave servers, please make sure to meet the following requirements for correct load balancing:

- All boxes in LB cluster must have the same OS version installed on. For RedHat GFS, all servers must be RedHat servers. In case of generic Linux NFS or NetApp, master/slave servers under FreeBSD are supported in HS 3.0 RC 4 and up.
- The /hsphere directory on a Web server **should not be created a separate partition!**

The operations on master and slave servers are made under root.

- 1 Create the /hsphere directory on the master and all slave servers:

```
# mkdir /hsphere
```

- 2 If you are using GFS, run on each master and slave servers:

1. Load kernel module:

```
# modprobe gnbd
```

2. Import GFS file system from the NAS server:

```
# gnbd_import -i FILER_NAME
```

where FILER_NAME is the NAS server domain name. You should get the following output:

```
gnbd_import: created gnbd device gfs1
gnbd_monitor: gnbd_monitor started. Monitoring device #0
gnbd_recvd: gnbd_recvd started
```

- 3 Mount the storage directory on the NAS server to /hsphere directory on the master and all slave servers.

a For RedHat GFS:

Add the following mountpoint to /etc/fstab on the master and all slave servers:

```
/dev/gnbd/gfs1 /hsphere gfs defaults 0 0
```

Mount the GFS logical volume on the master and all slave servers:

```
# mount -t gfs /dev/gnbd/gfs1 /hsphere
```

b For generic Linux NFS or NetApp:

Add the following mountpoint to /etc/fstab on the master and all slave servers:

```
<NAS_IP>:/filer/<CLUSTER_TYPE> <CLUSTER_ID>/hsphere /hsphere nfs
defaults,nfsvers=3,rsz=32768,wsz=32768 0 0
```

For mail server cluster, also add these mountpoints on all servers:

```
<NAS_IP>:/filer/<CLUSTER_TYPE> <CLUSTER_ID>/users /var/qmail/users
nfs defaults,nfsvers=3 0 0
<NAS_IP>:/filer/<CLUSTER_TYPE> <CLUSTER_ID>/control
/var/qmail/control nfs defaults,nfsvers=3 0 0
```

To mount the directory, run:

```
# mount -a && mount
```

- 4 On the master server, create the `/hsphere/local/config/lb.map` file of the following format:

```
<Master_IP>|<Slave1_IP>|...|<SlaveN_IP>
```

Note: The lines of the same format should be also added for each dedicated IP bound on the cluster:

```
<Master_Dedicated_IP>|<Slave1_Dedicated_IP>|...|<SlaveN_Dedicated_IP>
```

- 5 On every master and slave server, create the `/etc/hsphere/lb.id` file with the line of the following format:

```
<CLUSTER_TYPE>|<SERVER_ID>
```

where `<CLUSTER_TYPE>` is mail or web; `<SERVER_ID>` is LB server id: 0 for master, 1 for the first slave, 2 for the second slave, etc.

For example, for slave server with `<Slave2_IP>` in LB Web cluster the `lb.id` file will look like:

```
web|2
```

- 6 Generate SSH keys to access the master's root from each slave server without password.

1. Log into each slave server as root.
2. Create public key on each slave server:

```
# ssh-keygen -t dsa
```

3. Log from each slave server to the master server as root and insert the contents of the `/root/.ssh/id_dsa.pub` file from each slave server into the `/root/.ssh/authorized_keys2` file of the master server.
4. Log from the each slave server into the master server as root once again to ensure slave servers are able to log into the master without password:

```
# ssh root@<Master_IP>
```

Answer `yes` to all prompts. This will add the master server to the list of known hosts (`/root/.ssh/known_hosts`) of a slave server. After that, load balancing synchronization scripts will work without password prompts.

- 7 **Important:** To make sure Parallels H-Sphere related data is correctly synchronized on master and slave servers, add time synchronization (on page 32) to the master and slave servers' crontabs.

Step 4. Install Parallels H-Sphere to Load Balanced Parallels H-Sphere Clusters

- 1 Log into Parallels H-Sphere admin CP (it is assumed you have Parallels H-Sphere 3.0 and up already installed).
- 2 Add master and all slave servers as physical servers to Parallels H-Sphere.
- 3 Set master-slave relations between master and slave physical servers. This is described in the section Load Balanced Server Clusters of Parallels H-Sphere Service Administrator Guide.
- 4 Add Web/mail logical server **only to master** physical server. **Do not add logical servers to slave servers!**

In logical server options you need to set **Load Balancer Server Parameters**:

- **File Server Type:** file storage OS type (on page 397), like UNIX for generic Linux NFS
 - **File Server:** file storage volume location, like `<NAS_IP>:/filer/<CLUSTER_TYPE>_<CLUSTER_ID>/` in the above example
 - **File Path:** (optional) file storage path to Parallels H-Sphere installation directory, like `/filer/<CLUSTER_TYPE>_<CLUSTER_ID>/hsphere` in the above example
 - **File server Volume ID:** file storage volume ID, like `<CLUSTER_TYPE>_<CLUSTER_ID>` in the above example.
- 5 For mail LB cluster, it is required to configure Horde Webmail frontend (on page 155) to use external Web server and external MySQL database server, and also to configure SpamAssassin (on page 180) to external MySQL database.
 - 6 Configure NAT for LB Web/mail clusters

Parallels H-Sphere Control Panel works with only one logical server (that is, master server) for each load balanced Web cluster. To configure load balanced Web/mail cluster with NAT, you must have NAT turned on (on page 28) in Parallels H-Sphere and put external Web/mail server IP routed by the Load Balancer into correspondence with the master server's internal IP.

For example, for a load balanced Web cluster with one master and 4 slave servers, where the master Web server's internal IP `192.168.0.100` corresponds to the external IP `12.34.56.100` bound to the Load Balancer.

- In the `~cpanel/shiva/psoft_config/ips-map.xml` file on the CP server there should be the following record:

```
<ips>
. . .
  <ip ext="12.34.56.100" int="192.168.0.100"/>
. . .
</ips>
```

- All dedicated IPs on the master server must be also associated with corresponding IPs on the Load Balancer and similar records must be added to the ip-map.xml file:

```
<ip ext="LB_Dedicated_IP" int="Master_Dedicated_IP"/>
```

- Also, you should have external IP in the **E.Manager -> DNS Manager -> Service Zone** menu in admin CP. For example:

```
www.test.com 3600 IN A 12.34.56.100
mail.test.com 3600 IN MX 12.34.56.111
```

- 7** Download the latest Parallels H-Sphere updater of Parallels H-Sphere 3.0 RC 1 and up and follow the instructions on adding new servers into Parallels H-Sphere to install Parallels H-Sphere related packages **only on master server**.
- 8** In the updater's command line, run one of the following commands to complete installation and configuration on slave servers:

```
hspackages slaves=web
hspackages slaves=mail
hspackages slaves=all
```

More about updater options read in Parallels H-Sphere Update Guide.

Quota Managers

Parallels H-Sphere supports quota management for third party file storage systems like BlueArc or NetApp for load balanced Web/mail clusters (on page 397). If not specified otherwise, Parallels H-Sphere uses generic Linux/FreeBSD server quota manager.

To set a third party NAS quota manager, add the `QUOTA_MANAGER` variable in `~cpanel/shiva/psoft_config/hsphere.properties`, for example, like this:

```
QUOTA_MANAGER = BLUE_ARC
```

The following quota managers are supported:

- UNIX - generic Linux/FreeBSD quota manager (default)
- NET_APP - NetApp quota manager (<http://www.netapp.com/products/filer/>)
- BLUE_ARC - BlueArc quota manager (<http://www.bluearc.com/>)
- EMC_CELERRA - EMC Celerra quota manager (<http://www.emc.com/products/networking/servers/index.jsp>)

Resources Migration

This chapter explains how to migrate resources into Parallels H-Sphere from Parallels H-Sphere and other control panels using XML-structured data. It can also serve as a guide to setting up a large number of Parallels H-Sphere users at a time. You are expected to have an installed and configured Parallels H-Sphere control panel on the target server.

Migratable Resources

Users can be migrated with the following resources:

- User contact and billing info
- Domains (with or without DNS)
- DNS: custom A, MX, CNAME records; domain vhost aliases; domain aliases with their DNS and mail configuration
- Web: settings, FrontPage, CGI, CGIDir, MIME, PHP, SSI, ErrorDoc, ErrorLog, TransferLog, Webalizer, ModLogAn, RefferrerLog, AgentLog, Vhost alias, Directory indexes, Redirect, Urchin3, Urchin4, ASP, ASP.NET, ColdFusion, MSSQLManager
- Mail: Mailboxes, Autoresponder for mailboxes, Mailforwards, Mailing lists
- FTP: resources: virtual hosts, anonymous virtual hosts, virtual host directories with permissions, virtual host users, FTP subaccounts (Unix)
- MySQL: users, databases with user permissions
- PostgreSQL: users, databases
- MSSQL: users, logins, databases
- ODBC: dsn records with params

Crontab: crontab records for users The following resources are NOT YET implemented in XML migration mechanism:

- DNS: instant access domain alias
- Web: SSL, Shared SSL, MivaEmpresa, MivaCart, osCommerce, PhpBB

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Migration Procedure 417

Migration Procedure

The migration procedure takes the steps below.

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Step 1. Create XML File Containing User Data

Create xml and dtd files to migrate resellers and end users or end users without resellers.

If you are moving users from Parallels H-Sphere, do it with the UserInfoExtractor utility as suggested in Creating User Migration XMLs in Parallels H-Sphere (on page 418).

If you are moving users from a different control panel, follow the instruction on Creating User Migration XMLs Outside Parallels H-Sphere (on page 422).

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Creating User Migration XMLs in Parallels H-Sphere

This document explains how to create XML files with Parallels H-Sphere reseller and end user data for migration to a different Parallels H-Sphere cluster.

User info can be obtained and formatted with the `UserInfoExtractor` utility executed under Control Panel user (on page 65).

`UserInfoExtractor` extracts resellers into the `migrate_resellers.xml`, and their end users separately into `migrate_users.xml`.

`UserInfoExtractor` runs with the following parameters:

- **-resellers** - extracts only resellers into the `migrate_resellers.xml` file:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers OPTIONS
```

where `OPTIONS` include:

- **-resellersbynames** - extract listed resellers:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers -resellersbynames <RESELLER-1> ... <RESELLER-N>
```

- **-resellersfromfile** - extract resellers listed in a plain text file:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers -resellersfromfile /home/resellers.txt
```

- **-usersbynames** - extract resellers for listed individual users:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers -usersbynames <USERNAME-1> ... <USERNAME-N>
```

- **-usersfromfile** - extract resellers for individual users listed in a plain text file:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers -usersfromfile /home/users.txt
```

- **-usersbylserver** - extract resellers for all users located on a specified logical server:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -resellers -usersbylserver <LSERVER_ID>
```

- **-users** - extracts end users into the `migrate_users.xml` file. This option is meant by default if both **-resellers** and **-users** options are omitted in the command:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] [-users] OPTIONS
```

where `OPTIONS` include:

- **-usersbynames** - extract listed end users by usernames:

```
java psoft.hsphere.migrator.UserInfoExtractor [-force] -users -usersbynames <USERNAME-1> ... <USERNAME-N>
```

- **-usersfromfile** - extract users by usernames listed in a plain text file:

```
java psoft.hsphere.migrator.UsersInfoExtractor [-force] -users
-usersfromfile /home/users.txt
```

- `-resellersbyname` - extract users that belong to listed resellers:

```
java psoft.hsphere.migrator.UsersInfoExtractor [-force] -users
-resellersbyname <RESELLER-1> ... <RESELLER-N>
```

- `-resellersfromfile` - extract users that belong to resellers listed in a plain text file:

```
java psoft.hsphere.migrator.UsersInfoExtractor [-force] -users
-resellersfromfile /home/resellers.txt
```

- `-usersbylserver` - extract users located on a certain logical server:

```
java psoft.hsphere.migrator.UsersInfoExtractor [-force] -users
-usersbylserver <LSERVER_ID>
```

Use the `force` parameter to ignore errors. Error messages will be written to `migrate_errors.log`.

Important: Note that you must specify user and reseller names, not ids!

Important: If you are migrating master admin's end users, you just extract them into `migrate_users.xml` without extracting master admin as reseller.

See also:

- Sample xml file with reseller data:
http://hsphere.parallels.com/HSdocumentation/xmIs/migrate_resellers_25.xml
- Sample xml file with end user data:
http://hsphere.parallels.com/HSdocumentation/xmIs/migrate_users_25.xml
- Sample dtd file for resellers:
<http://hsphere.parallels.com/HSdocumentation/xmIs/resellers.dtd>
 - Explanations to dtd file for resellers (on page 420)
- Sample dtd file for end users:
<http://hsphere.parallels.com/HSdocumentation/xmIs/users.dtd>
 - Explanations to dtd file for end users:
<http://hsphere.parallels.com/HSdocumentation/xmIs/userxml/>

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DTD Structure of Reseller XML Migration File 420

DTD Structure of Reseller XML Migration File

Data Type Definitions

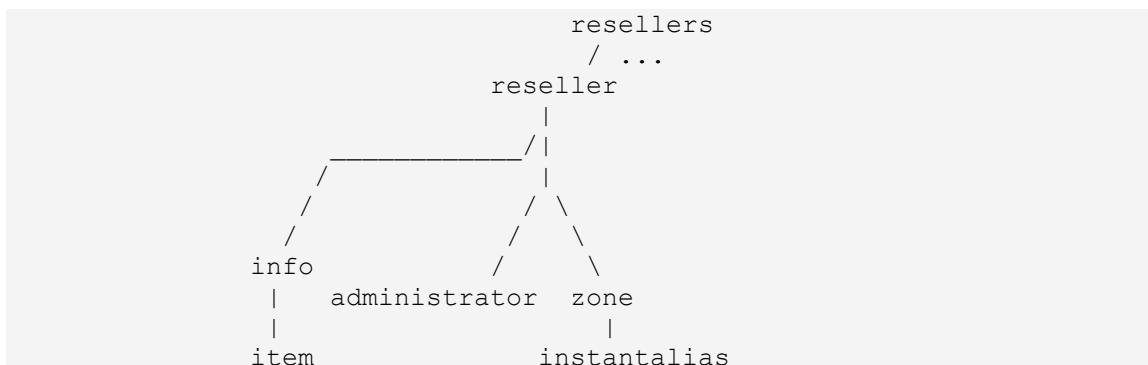
Here is the DTD structure defined in resellers.dtd:

```
<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT resellers (reseller*, users?)>
<!ELEMENT reseller (info+, administrator, zone*, users?)>
<!ELEMENT zone (instantalias*)>
<!ELEMENT instantalias (#PCDATA)>
<!ELEMENT administrator (#PCDATA)>

<!ATTLIST reseller login CDATA #REQUIRED>
<!ATTLIST reseller password CDATA #REQUIRED>
<!ATTLIST reseller plan CDATA #REQUIRED>
<!ATTLIST administrator login CDATA #REQUIRED>
<!ATTLIST administrator password CDATA #REQUIRED>
<!ATTLIST administrator email CDATA #REQUIRED>
<!ATTLIST zone name CDATA #REQUIRED>
<!ATTLIST zone email CDATA #REQUIRED>
<!ATTLIST instantalias prefix CDATA #REQUIRED>
<!ATTLIST instantalias tag CDATA #REQUIRED>
<!ENTITY % users_rules SYSTEM "users.dtd"> %users_rules;
```

DTD Chart

The above structure may be represented graphically in the following chart:



Attributes Description

- reseller:
 - login - reseller login
 - password - reseller password
 - plan - the plan the reseller is signed up for

- info (contact/billing signup information): (see signup fields description in the section User Signup Customization of Parallels H-Sphere Customization Guide)
 - type="_ci_" (contact info) or type="_bi_" (billing info)
- administrator:
 - login - reseller admin cp login
 - password - reseller admin cp password
 - email - reseller admin email address
- zone:
 - name - the name of the reseller service zone
 - email - email for the reseller service zone (for example, if it is reseller@example.com, it must be set as reseller.example.com)
- instantalias:
 - prefix - prefix to be added to instant aliases for this zone (for example, u)
 - tag - shared IP tag for the instant alias (usually, 2)

XML example with reseller data:

http://hsphere.parallels.com/HSdocumentation/xmls/migrate_resellers_25.xml

Creating User Migration XMLs Outside Parallels H-Sphere

This section explains how to format user data for migration from third party hosting systems into Parallels H-Sphere. Use it to:

- migrate direct end users, resellers, and resellers' end users;
- migrate only direct end users if you don't have resellers.

Files

Create the following files:

- **resellers.dtd** - data type definitions for resellers
 - example: <http://hsphere.parallels.com/HSdocumentation/xmls/resellers.dtd>
 - explanation (on page 420)
- **users.dtd** - data type definitions for end users
 - example: <http://hsphere.parallels.com/HSdocumentation/xmls/users.dtd>
 - explanation: <http://hsphere.parallels.com/HSdocumentation/xmls/userxml/>
- **migrate_resellers.xml** - XML file containing reseller data only
 - example:
http://hsphere.parallels.com/HSdocumentation/xmls/migrate_resellers_25.xml
 - explanation (on page 420)
- **migrate_users.xml** - XML file containing user data only
 - example:
http://hsphere.parallels.com/HSdocumentation/xmls/migrate_users_25.xml
 - explanation: <http://hsphere.parallels.com/HSdocumentation/xmls/userxml/>

You may have data for hundreds and thousands of users in the xml file.

Alternatively, you may set DTD definitions directly within the XML file:

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE users [
// DTD rules as in users.dtd
. . .
]>
<users>
. . .
```

We recommend defining DTD externally, using our latest DTD:

```
<!DOCTYPE users SYSTEM "users.dtd">
<!DOCTYPE resellers SYSTEM "resellers.dtd">
```

DTD files help ensure that all XMLs are formatted the right way. But please note that XML files will be created no matter DTD file exists or not.

Warning: If you make a mistake in DTD definitions, migration may fail.

XML Validation

Once you have created the XML, please do the following:

- 1 Validate the user data xml files with any xml validation software.
- 2 Make sure the xml file does not contain user with the login "admin".
- 3 Make sure that mail sections of each user don't contain mail loops.
- 4 Ensure that the billing period starting date has the MM/DD/YY format.
- 5 Make sure that in the user tag the value of the login attribute is unique and doesn't begin with a number (this value will be used as the Parallels H-Sphere control panel login name).

Now you are ready to create the accounts.

Step 2. Create XML File Containing Reseller Plan Data

Note: Skip this step if you are migrating only master admin's end users.

Create XML files for the reseller plans to be migrated. If you migrate from Parallels H-Sphere, use the `PlanExtractor` utility. Otherwise, create plan XML according to our documentation. Please refer to Migrating Plans with XML (on page 424) for details.

In this section:

Migrating Plans with XML 424

Migrating Plans with XML

Plan settings are stored in XML format, which allows extracting and moving them to other locations.

Migratable Plans. Migratable plans include all non-reseller plans, namely: Unix, Windows, Admin, MySQL, E-Mail, Unix Real Server, Windows Real Media. All end user plans, including those of master admin and resellers, are migratable.

Migration Tools. Plans are migrated with two Java classes, `PlanExtractor` and `PlanCreator`, located in the `~cpanel/shiva/psoft/hsphere/migrator/` directory.

1) `PlanExtractor` is a Java utility to extract Parallels H-Sphere plans into XML format. Extracted plans are stored in the `plans.xml` file.

2) `PlanCreator` is a tool for importing plans to a new CP from the file `plans.xml` with plans extracted by `PlanExtractor`.

Also, you'll need to place the following files in the `~cpanel/shiva/psoft/hsphere/migrator/` directory:

- `plans.xml` (<http://hsphere.parallels.com/HSdocumentation/xm1s/plans.xml>) - XML-formatted information about plans extracted by `PlanExtractor`.
- `plans.dtd` (<http://hsphere.parallels.com/HSdocumentation/xm1s/plans.dtd>) - DTD scheme for `plans.xml`.
- `migrate_plans.log` - messages about errors occurred during plan extraction.

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Plan Extractor

Log into CP server as cpanel (on page 65) and run `PlanExtractor`:

```
java psoft.hsphere.migrator.PlanExtractor [-force] -resellername
res_name [-plans the list of plan names] [-ids the list of plan ids]
```

Options:

- The `-force` option is used to ignore all possible errors while extracting plans.
- The `-resellername` option requires the username of the reseller whose plans are extracted. To extract plans for master admin, use option `-resellername admin`.
- The `-plans` option requires names of plans to be extracted for this reseller. If a plan name contains spaces, it must be quoted, e.g.:

```
-plans Unix1 'Reseller 2' WinBest33
```

If you omit both `-plans` and `-ids`, all plans will be extracted.

- The `-ids` option requires IDs of plans to be extracted for this reseller. If you omit both `-plans` and `-ids`, all plans will be extracted.

Examples:

```
java psoft.hsphere.migrator.PlanExtractor -force -resellername RESELLER
-plans silver 'unix gold'
java psoft.hsphere.migrator.PlanExtractor -force -resellername RESELLER
-ids 7564 7675
java psoft.hsphere.migrator.PlanExtractor -force -resellername RESELLER
java psoft.hsphere.migrator.PlanExtractor -resellername admin -plans
silver -resellername RESELLER -ids 7564
```

`PlanExtractor` writes error messages to `migrate_plans.log`.

Plan Creator

Run `PlanCreator` as `cpanel` with the following syntax:

```
java psoft.hsphere.migrator.PlanCreator [-active] -d plans.xml [-
createprices]
```

Options:

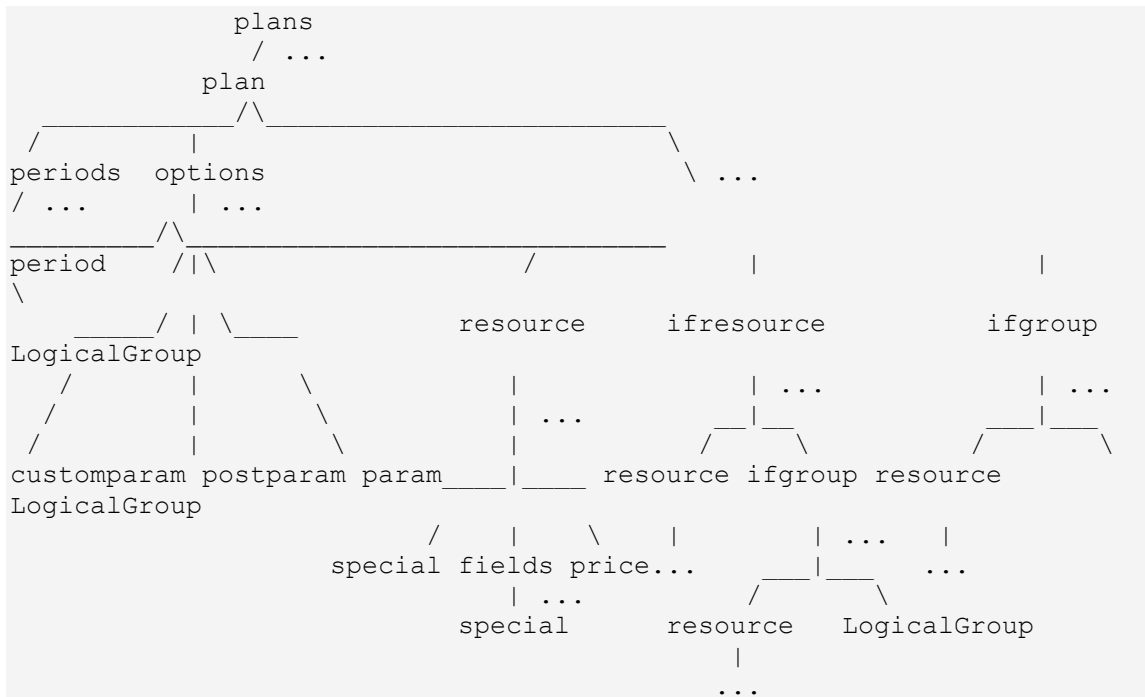
- `-active` - if possible, activate plans after they are created.
- `-d plans.xml` - specify plan XML file to be taken.
- `-createprices` - create prices for plans.

Make sure to restart Parallels H-Sphere (on page 54) after running `PlanCreator`.

`PlanCreator` writes error messages to `migrate_plans.log`.

XML Document Structure

The structure of `plans.xml` looks as follows:



Example of `plans.xml`: <http://hsphere.parallels.com/HSdocumentation/xm1s/plans.xml>

DTD Scheme: <http://hsphere.parallels.com/HSdocumentation/xm1s/plans.dtd>

XML Elements and Attributes

1 plan - plan description:

- name - plan name
- reseller - reseller name (if not available, admin is assumed)
- wizard - wizard name

2 period - plan periods:

- id - period id
- size - period duration
- type - period type (DAY, WEEK, MONTH, YEAR)
- discountusage - usage discount (%)
- discountsetup - setup discount (%)
- discountunit - recurrent discount (%)

3 param - plan parameters used for the plan creation:

- name - parameter name

value - parameter value Parameters:

- trial - billing type: 0 - Without billing, 1 - Paid, 2 - Trial
- trial_duration - trial period for the billing type trial
- trial_credit - credit limit for the billing type trial
- hard_credit - credit limit
- send_invoice - enable e-mail invoice notification
- mixedip - default IP type (shared or dedicated)
- shared_ip_tag - shared IP Tag
- calias - instant alias for the given shared IP tag
- stopgapalias - stopgap domain for the given shared IP tag
- money_back - enable money back
- money_back_days - money back guarantee in days
- periods - the number of plan periods

4 postparam - parameters to be set after the plan creation:

- name - parameter name

value - parameter value Parameters:

- contactinfo - enable contact info
- billinginfo - enable billing info
- _template - default template
- _TEMPLATES_DIR - template directory

- 5** `customparam` - custom parameters to be set after the plan creation:
- `name` - parameter name
 - `value` - parameter value

- 6** `resource` - resources available for the plan.

Check corresponding plan wizard XML documents in the
~cpanel/psoft/hsphere/plan/wizard/xml/ directory for the list of available
resources and the way they are set:

- `name` - resource name
- `enable` - is resource enabled
- `include` - is resource included
- `active` - is resource activated

- 7** `price` - resource price:

- `id` - price id
- `freeunits` - free units
- `setup` - setup units
- `unit` - monthly units
- `usage` - extra units

- 8** `LogicalGroup` - the plan's logical group:

- `name` - logical group name
- `type` - logical group type
- `groupid` - logical group id

- 9** `special` - special resource parameters:

- `name` - special field name
- `value` - special field value

Step 3. Prepare The Target Control Panel

Before you start creating accounts from the xml files, log as cpanel user (on page 65), go to the target Parallels H-Sphere control panel and do the following:

- 1 Make sure that the names of the plans are exactly the same as those in your user data xml file. To get a list of all reseller and user plans in the system, run:

```
java psoft.hsphere.migrator.ResellerUserCreator -d  
migrate_resellers.xml -dl -pp
```

- 2 In the xml file, find users that have empty or filled *mysql* tag. In the control panel, enable MySQL resource for the plans you are migrating these users to.
- 3 If you intend to migrate the existent user content into Parallels H-Sphere, include but deactivate FrontPage in all plans you are migrating your customers to, and in which FrontPage will be used.
- 4 If you want to preserve original billing period start date, make sure that the billing periods have the same duration and go in the same order as those in your old control panel.

Step 4. Create Reseller Plans

Note: Skip this step if you don't have resellers.

If you have resellers, run PlanCreator to create reseller plans on the target Parallels H-Sphere installation, for example:

```
java psoft.hsphere.migrator.PlanCreator -active -d plans.xml
```

Please refer to Migrating Plans with XML (on page 424) for details.

Step 5. Create Resellers

To create resellers, run ResellerUserCreator:

```
java psoft.hsphere.migrator.ResellerUserCreator -d  
migrate_resellers.xml -l migrate.log -dl
```

Step 6. Create End Users

To migrate end users, run `CommonUserCreator`:

```
java psoft.hsphere.migrator.CommonUserCreator -d migrate_users.xml -l migrate.log -dl
```

Note: To prevent double charges for resources billed on the monthly basis, such as Traffic and Disk Usage, `CommonUserCreator` shifts start date for them to the day before the date of migration.

Troubleshooting

If the migration software fails to create a reseller/end user account, it will return an error and stop the migration. In this case, read the messages on the screen to find which user caused the failure, read the log file and try to remove the cause of the error.

Note: If the domain tag of this user in the XML file contains the ip attribute and if the IP in this user's domain was created before the error occurred, go to the Parallels H-Sphere control panel and delete this IP.

Then, proceed with the migration using the above command plus one of these two options:

- `-r user_login` - proceed with the migration starting with the user with this login name;
- `-rc user_login` - delete this user and then proceed with the migration starting with this user.

The full command must look like this:

a) for a reseller's end user:

```
java psoft.hsphere.migrator.ResellerUserCreator -d migrate_resellers.xml -l migrate.log -dl -r user_login
```

b) for a direct end user:

```
java psoft.hsphere.migrator.CommonUserCreator -d migrate_users.xml -l migrate.log -dl -r user_login
```

Backup and Recovery

This chapter explains how to back up Parallels H-Sphere system and user data.

Backup of the Control Panel server with the PostgreSQL system database is done by the Parallels H-Sphere backup script. It requires PostgreSQL client version 7.3 or higher installed and the psql program available in the system paths on the CP server.

Backing up content on the Unix servers is performed manually. See the backup and recovery list (on page 433) of Parallels H-Sphere related directories and files.

We recommend that you set up a separate server to store backup archives.

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Backing Up Parallels H-Sphere Control Panel Server

This section explains how to back up the Control Panel server with the system database by means of the backup script.

The backup script located in the `/hsphere/shared/backup` directory. The script includes the following files:

- `hs_bck` - the main script file
- `hs_bck.cfg` - custom configuration file. This is the file to store the list of directories to back up.
- `hs_bck.cfg.org` - default configuration file. It can be overwritten with Parallels H-Sphere updates. This is where you can find the updated list of parameters to the `hs_bck` script if it has been changed in a new version.
- `hs_bck.txt` - description/readme file.

You need to configure the script by editing the `hs_bck.cfg` file.

➤ *To back up Parallels H-Sphere CP server:*

- 1 Log into the CP server as root:

```
su -
```

- 2 cd into the backup script directory:

```
cd /hsphere/shared/backup
```

- 3 Make sure the files `hs_bck.cfg` and `hs_bck.cfg.org` are identical in what is not your custom settings. The format of the `hs_bck.cfg.org` file may change with Parallels H-Sphere updates, and it is important to ensure that the backup script is launched with correct parameters.
- 4 In `hs_bck.cfg`, edit the list of directories and databases to back up. See the backup and recovery list (on page 433).
- 5 In `hs_bck.cfg`, edit the the backup storage directory, the number of latest backups to be stored (7 by default), the log file, etc.
- 6 Run the backup script.

- For regular automatic backups, add the execution of the `hs_bck` file into the CP server crontab configuration (on page 33), e.g.:

```
<TIME> /hsphere/shared/backup/hs_bck hs_bck.cfg 2>&1 > /dev/null
```

For example, to run the backup script every day at 6:13 AM, add the following line:

```
13 6 * * * /hsphere/shared/backup/hs_bck
/hsphere/shared/backup/hs_bck.cfg 2>&1 > /dev/null
```


- For additional parameters to this script, please run:

```
/hsphere/shared/backup/hs_bck
```

System DB Dump

In addition to backing up the `pgsql` directory on the CP server, the backup script can also create a dump of Parallels H-Sphere system database and Parallels SiteStudio databases. For this, make sure the following directories are listed:

```
PROP_FILE
/hsphere/local/home/cpanel/shiva/psoft_config/hsphere.properties
PROP_FILE /hsphere/shared/SiteStudio/psoft_config/counter.properties
PROP_FILE /hsphere/shared/SiteStudio/psoft_config/poll.properties
PROP_FILE /hsphere/shared/SiteStudio/psoft_config/guestbook.properties
```

If Parallels H-Sphere database is large, the dump can take several hours to complete. You can speed it up by setting `fsync=off` in `postgresql.conf`. When you are done, unset this option back for safety reasons.

Parallels H-Sphere Backup and Recovery List

Following is the list of directories and files to back up and recover. Backup can be done by means of the Parallels H-Sphere backup script (on page 432) on the CP server or manually on other Parallels H-Sphere servers.

Item	Comment
Control Panel Server	
/hsphere/local/home/cpanel/hsphere/WEB-INF/classes/psoft_config/	Parallels H-Sphere configuration and properties files
/hsphere/shared/SiteStudio/studio/WEB-INF/classes/psoft_config/	Parallels SiteStudio configuration and properties files
/hsphere/local/home/cpanel/apache/etc/	Apache configuration and properties files
/hsphere/local/home/cpanel/hsphere/WEB-INF/classes/shiva-templates/IMAGES/	Control Panel icons and images
/hsphere/local/home/cpanel/hsphere/WEB-INF/classes/custom/	Custom Control Panel templates, etc.
/hsphere/shared/SiteStudio/var/websites/	Parallels SiteStudio user data
/var/lib/pgsql/	Parallels H-Sphere and Parallels SiteStudio system databases and database settings

/hsphere/local/home/cpanel/.kb/ /hsphere/local/home/cpanel/.attachments/	Parallels H-Sphere knowledge bases
/hsphere/local/home/cpanel/shiva/packages	Parallels H-Sphere packages
Web Server	
/hsphere/local/home/	User Home Directories
/usr/local/frontpage/	FrontPage Extensions settings
/hsphere/local/config/	httpd and ftp configs
/var/spool/cron/ (Linux) /var/cron/tabs/ (FreeBSD)	Customer Crontabs
/hsphere/shared/apache/htdocs/phpMyAdmin/config.inc.php	phpMyAdmin configuration file
/hsphere/shared/apache/htdocs/phpPgAdmin/conf/config.inc.php	phpPgAdmin configuration file
/hsphere/local/network/	ips file, etc.
/hsphere/shared/awstats/wwwroot/cgi-bin/	AWS configs et al.
Mail Server	
/hsphere/local/var/vpopmail/etc/	vpopmail settings
/hsphere/local/var/vpopmail/domains/	Mail domains
/var/qmail/control/	Settings for qmail addons
/var/qmail/users/	qmail users
/hsphere/local/config/	httpd and ftp configs
/var/lib/mysql/ (Linux) /var/db/mysql/ (FreeBSD)	MySQL databases (used to store user settings for integrated antispam and antivirus software)
/hsphere/shared/apache/htdocs/horde/conf/config.php	Horde settings
DNS Server	
/etc/named.conf /etc/rndc.conf	Main DNS config files
/hsphere/local/var/named/	DNS zone files
MySQL Server	
/var/lib/mysql/ (Linux) /var/db/mysql/ (FreeBSD)	MySQL settings and databases
User PostgreSQL Server	
/var/lib/pgsql/ (Linux) /usr/local/pgsql/ (FreeBSD)	User postgres settings and databases

Recovering Parallels H-Sphere Control Panel

This document provides a general outline on how to recover Parallels H-Sphere Control Panel to a new server if the old one has crashed due to hardware or other problems. We will be looking into two situations:

- You have been having hardware problems that didn't affect the HDD, and you can access the HDD. This also applies to hacked servers. In this case, you'll have to mount the HDD of the crashed server to the new server to copy below system data from it.
- You've had a HDD failure and/or the HDD is inaccessible. In this case, you'll have to restore below system data from a backup (on page 432).

In either case it is presumed that your old server is down and no Parallels H-Sphere servers are running.

This instruction doesn't give file/directory locations for FreeBSD, because Linux is the recommended operating system for the CP server.

Step 1. Prepare for the Recovery

- 1 On the target server, install exactly the same version of Parallels H-Sphere Control Panel as on the source server.
- 2 Make sure the source and target servers have the same versions of all software packages. For example, make sure that the target server has the same version of PostgreSQL as the source server.
- 3 Stop Parallels H-Sphere CP (on page 54) and stop PostgreSQL service (on page 55) on the target server.

Step 2. Recover System Data

- 1 Log into the target server as root.
- 2 Copy files and directories in the table below from the source server or backup to the target server.
 - If you are recovering from a backup made by the backup script (on page 432), untar the backup archive copy the below directories.
 - If you are recovering data from the HDD of the crashed server, just copy the below directories:

```
rsync -arlpogvzt -e ssh SOURCE_SERVER_IP:DIRECTORY_PATH  
TARGET_DIRECTORY_PATH
```

- 3 Restore the backed up SSH keys from the `~cpanel/.ssh/identity.pub` and `~cpanel/.ssh/id_dsa.pub` into the `/root/.ssh/authorized_keys` and `/root/.ssh/authorized_keys2`, respectively, instead of the new keys generated on the target server after Step 1. Please refer the Generating SSH Keys for Parallels H-Sphere Servers (on page 109) document for details.
- 4 On multiserver Parallels H-Sphere cluster, test inter-server communication via SSH without login. For example:

```
su -l cpanel
ssh root@cp_server_ip
exit
ssh root@second_server_ip
exit
```

and so on.

- 5 Sometimes, in order to restore some core templates and images, you may need to run the Parallels H-Sphere update script for this version with the `hsonlycpupdate` option.
- 6 Start Parallels H-Sphere CP (on page 54) and PostgreSQL (on page 55) on the target server.

Note: If PostgreSQL does not run smoothly after its start, remove the `postmaster.pid` file in `/var/lib/pgsql`

- 7 You may test the Parallels H-Sphere database by running:

```
su -l cpanel -c 'psql hsphere'
```

This should result in a successful log into the database from the command line.

Files and Directories To Be Recovered

Item	Comment
<code>~cpanel/shiva/psoft_config/</code>	Parallels H-Sphere configuration and properties files
<code>/hsphere/shared/SiteStudio/psoft_config/</code>	Parallels SiteStudio configuration and properties files
<code>~cpanel/apache/etc/</code>	Apache configuration and properties files
<code>~cpanel/shiva/shiva-templates/IMAGES</code>	Control Panel icons and images
<code>~cpanel/shiva/custom</code>	Custom Control Panel templates, etc.
<code>/hsphere/shared/SiteStudio/var/web sites</code>	Parallels SiteStudio user data
<code>/var/lib/pgsql</code> (on Linux) <code>/var/db/pgsql</code> or <code>/usr/local/pgsql</code> (on FreeBSD)	Parallels H-Sphere and Parallels SiteStudio system databases and database settings

~cpanel/.kb/ ~cpanel/.attachments/	Parallels H-Sphere knowledge bases
~cpanel/.ssh/identity.pub ~cpanel/.ssh/id_dsa.pub	SSH keys to be restored into the /root/.ssh/authorized_keys and /root/.ssh/authorized_keys2, respectively, instead of the new keys generated on the target server after Step 1 (fresh Parallels H-Sphere installation).

Recovering Unix Hosted Parallels H-Sphere Servers

This document explains how to recover non-CP Linux/FreeBSD boxes. If you are restoring CP, see Recovering Control Panel (on page 435).

Important: To successfully recover a crashed server, you must meet the following requirements:

1. You must have all user content and configuration files previously backed up (on page 432).
2. You must have the physical and logical server structure of the crashed server preserved in the administrator CP in the **E.Manager** menu.

We suggest the procedure below.

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Step 1. Prepare Crashed Server for Recovery

- 1 Prepare the server where the crashed box's services and content are to be restored, according to Parallels H-Sphere installation requirements described in the Installation Guide.
- 2 Make sure this "blank" server is bound to the same IP the crashed server had.
- 3 Place the cpanel user's public SSH keys (on page 109) from the CP server to the server to be recovered so that you can connect via SSH from CP server's root to the new box without password.

Step 2. Run Parallels H-Sphere Updater

- 1 Log into the CP server as root:

```
$ su -l
```
- 2 Download the update script of the Parallels H-Sphere version you were running on the crashed server. If you already have an older version of the updater in the current directory, please remove or rename this file before the download.
- 3 Run the updater on the directory where you have downloaded it. See the Update Guide for details.
- 4 Restore the crashed server software by typing in the following command in the updater's command line prompt:

```
hspackages ips=<CRASHED_SERVER_IP>
```

Step 3. Run the Recovery Tool

Web, Mail, MySQL, PgSQL servers: To restore your Parallels H-Sphere physical resources (Unix users and configuration), log in as the cpanel user (on page 65) and run PhysicalCreator (on page 72).

Note: Do not confuse the account ID with the server ID you used when generating configuration files. Account IDs could be found in the accounts table of the Parallels H-Sphere system database.

DNS server: For DNS servers, log in as the cpanel user (on page 65) and run DNS Creator (on page 211):

```
java psoft.hsphere.tools.DNSCreator -m db
```

Step 4. Restore User Content

To restore data from the backup, check with the backup and recovery list (on page 433) for for this server. Restore listed directories from `/var/backup/<ARCHIVE>.tgz` or custom backup directory into the appropriate locations.

More on backup recovery (on page 440).

Restoring Files and Directories from Backup

This document explains how to recover Parallels H-Sphere user and system data you have backed up according to the manual on backing up Parallels H-Sphere (on page 432).

Parallels H-Sphere backup location is set in the `/hisphere/shared/backup/hs_bck.cfg` config file. The default location is `/var/backup`.

`hs_bck` stores the system data backup (with user content if configured in `hs_bck.cfg`) in the following files in the `BCK_DIR` directory:

- **<ARCHIVE>.tgz** - the latest backup; **<ARCHIVE>** is the name of the backup file set in `hs_bck.cfg`. This is the default name:
`BACKUP hs_bck`

Older backup files are named **<ARCHIVE>.1.tgz**, **<ARCHIVE>.2.tgz**, ...

- `hsphere.sql` - the Parallels H-Sphere system database backup
- `counter.sql`, `poll.sql`, `guestbook.sql` - Parallels SiteStudio system databases are also backed up if Parallels SiteStudio is set up with Parallels H-Sphere.

To restore data from the backup, check with the backup and recovery list (on page 433) for the directories that need to be recovered for this server. Restore these directories from **<ARCHIVE>.tgz** into the appropriate locations on the server.

Restoring the Parallels H-Sphere System Database From Backup

This documentation explains how to restore the Parallels H-Sphere system database from a backup made by the Parallels H-Sphere `hs_bck` (on page 432) script. If you back up your system PostgreSQL database manually using `pg_dump`, the procedure would be basically the same, except for the backup names and locations.

The backup destination directory for the `/hisphere/shared/backup/hs_bck` script is set in the `/hisphere/shared/backup/hs_bck.cfg` config file. The default location is:

```
BCK_DIR /var/backup
```

`hs_bck` stores the system data backup in the following files in the `BCK_DIR` directory:

- **<ARCHIVE>.tgz** - the system data content; **<ARCHIVE>** is the name of the backup file set in `hs_bck.cfg`:


```
BACKUP hs_bck
```

Older backup files are named **<ARCHIVE>.1.tgz**, **<ARCHIVE>.2.tgz**, ...

- `hsphere.sql` - backup of the Parallels H-Sphere system database
- `counter.sql`, `poll.sql`, `guestbook.sql` - Parallels SiteStudio system databases are also backed up if Parallels SiteStudio is integrated with Parallels H-Sphere.

Below are two cases restoring the database depending on PostgreSQL installed or not on the server.

In this section:

Restoring the Parallels H-Sphere Database on a Server with PostgreSQL Not Installed 442
Restoring the Parallels H-Sphere Database Content if PostgreSQL Is Installed:443

Restoring the Parallels H-Sphere Database on a Server with PostgreSQL Not Installed

- 1 Log into the server as root:

```
su -
```

- 2 Install PostgreSQL to the server.
- 3 Start PostgreSQL for the first time:

On RedHat servers:

```
/etc/rc.d/init.d/postgresql start
```

On FreeBSD servers, you need to initiate the PostgreSQL service database manually before you start Postgres:

```
su - pgsq1 -c initdb
/usr/local/etc/rc.d/010.pgsq1.sh start
```

- 4 Log in as PostgreSQL user:

On RedHat servers (the PostgreSQL service database is initiated automatically on login):

```
su - postgres
```

On FreeBSD servers:

```
su - pgsq1
```

- 5 Create the user `wwwuser`:

```
createuser wwwuser
```

Answer *yes* to all prompts.

- 6 Enter the PostgreSQL service database:

```
psql template1
```

- 7 Restore the `wwwuser` password:

```
alter user wwwuser with password 'old_password';
alter user pgsq1 with password 'old_password';
```

Here, `old_password` is the `wwwuser` password to be restored.

- 8 Quit from PostgreSQL:

```
\q
```

- 9 Configure PostgreSQL passwords in the `~pgsq1/data/pg_hba.conf` file, according to instructions provided in this file.
- 10 Optimize Postgres (on page 102) for better PostgreSQL performance on powerful servers, esp. when the database is large (more than 1GB).

Note: It is helpful to set `fsync=false` in `postgresql.conf` for the time of recovery. This allows to speed up the process. However, please beware that this may damage the database integrity, and we recommend using this option only on reliable hardware! **Don't forget to return to `fsync=true` after the recovery is complete!**

11 Restart PostgreSQL (on page 55).

12 Create Parallels H-Sphere database by running:

```
createdb -E UNICODE -U wwwuser hsphere
```

Parallels SiteStudio databases are created in the similar way.

13 Import the database content from the backup:

```
psql -U wwwuser -f <HS_BCK>/hsphere.sql hsphere
```

where `<HS_BCK>` is the backup directory. Parallels SiteStudio databases are imported in the similar way.

Restoring the Parallels H-Sphere Database Content if PostgreSQL Is Installed:

1 Log in to the CP server as root:

```
su -
```

2 Drop the Parallels H-Sphere database:

```
dropdb -U wwwuser hsphere
```

3 Create the Parallels H-Sphere database:

```
createdb -E UNICODE -U wwwuser hsphere
```

4 Optimize Postgres (on page 102) for better PostgreSQL performance on powerful servers, esp. when the database is large (more than 1GB).

Note: It is helpful setting `fsync=false` in `postgresql.conf` for the time of recovery. This allows to speed up the process. However, please beware that this may damage the database integrity, and we recommend using this option only on reliable hardware! **Don't forget to return to `fsync=true` after the recovery is complete!**

5 Import the database content from the backup:

```
psql -U wwwuser -f <HS_BCK>/hsphere.sql hsphere
```

where `<HS_BCK>` is the backup directory.

Parallels SiteStudio databases are restored in the same way.

Fixing Crashed Parallels H-Sphere Database

Sometimes PostgreSQL database can get corrupted to the point of no return. That might manifest itself in things like:

```
hsphere=# VACUUM ;
```

```
ERROR: Relation 71343 does not exist
```

This usually means that index is corrupted.

➤ **To recover from the problem:**

- 1 Login as root:

```
su -
```

- 2 Stop Postgres (on page 54) if it is running.
- 3 Make sure that no Postgres processes are running using the command:

```
ps auxw | grep post
```

If any of them are running, kill them.

- 4 Remove Postgres' pid file:

```
rm -f PGSQL_HOME/data/postmaster.pid
```

From now on, we note PGSQL_HOME as the Postgres home directory which is /var/lib/pgsql on RedHat servers, and /usr/local/pgsql on FreeBSD.

- 5 Switch to Postgres user:

```
# su - postgres (on RedHat)
```

```
# su - pgsql (on FreeBSD)
```

- 6 Backup PostgreSQL database stored in the PGSQL_HOME/data directory:

```
cp -r PGSQL_HOME/data pgdata.backup
```

- 7 Try to connect to the Parallels H-Sphere database in single mode:

```
postgres -D PGSQL_HOME/data -O -P hsphere
```

There can be errors like:

```
FindExec: found "/usr/bin/postmaster" using argv[0]
2002-03-22 13:42:46 [6002] DEBUG: database system was shut down at
2002-03-22 11:46:11 CET
2002-03-22 13:42:46 [6002] DEBUG: ReadRecord: invalid resource manager
id 157 at (0, 561372168)
2002-03-22 13:42:46 [6002] DEBUG: Invalid primary checkPoint record
2002-03-22 13:42:46 [6002] DEBUG: Invalid RMID in secondary checkPoint
record
```

```

2002-03-22 13:42:46 [6002] FATAL 2: Unable to locate a valid CheckPoint
record
2002-03-22 13:42:46 [6002] DEBUG: proc_exit(2)
2002-03-22 13:42:46 [6002] DEBUG: shmexit(2)
2002-03-22 13:42:46 [6002] DEBUG: exit(2)
/usr/bin/postmaster: reaping dead processes...
/usr/bin/postmaster: Startup proc 6002 exited with ...

```

The messages like:

```
ReadRecord: invalid resource manager
```

and other are culprit of the error.

In case of the above errors, do the following:

1 Execute:

```
pg_resetxlog PGSQL_HOME/data
```

(this will reset the write-ahead log and other control information of a PostgreSQL database cluster; they are important but this is the only way to recover).

2 Try to log into Postgres again in single mode:

```
postgres -D PGSQL_HOME/data -O -P hisphere
```

3 Once you are in, type:

```
reindex database hisphere;
```

4 Exit the database:

```
\q
```

5 Finally, start Postgres (on page 54) and see if everything is working.

Here, two Postgres tools are used:

- `reindex database` to recover corrupted indexes
- `pg_resetxlogs` to reset write-ahead log files and the state of Postgres.

Backing Up Winbox

This document explains how to back up your

- Windows server settings stored in the MetaBase,
- MS SQL database
- user content

In this section:

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Backing Up User Content.....	446

Backing Up the Metabase

- 1 Go to *Start -> Programs -> Administrative Tools -> Computer Management*.
- 2 In the left tree, unfold *Services and Applications*.
- 3 Right-click *Internet Information Services* and select *Backup/Restore Configuration*.
- 4 In the window that appears, click *Create Backup*.

Usually, IIS metabase backup files are located in the following directory:

`C:\WINNT\system32\inetsrv\MetaBack\`

Backing Up MS SQL Databases

- 1 Go to *Start -> Programs -> Microsoft SQL Server -> Enterprise Manager*.
- 2 Unfold the left menu tree until you see the name of the logical server. Click it.
- 3 Click *Tools* on the toolbar and select *Backup Database*.

Backing Up User Content

- 1 Go to *Start -> Programs -> Accessories -> System Tools -> Backup*.
- 2 Select *Backup Wizard*
- 3 On the first step of the wizard, select *Back up selected files, drives, or network data*.

Recovering Winbox

This document explains how to restore Parallels H-Sphere Winbox configuration using the Physical Creator (on page 72) utility. If you have access to user homes, you can recover user content from this directory. If you don't, you'll need an earlier backup (on page 445) with preserved directory structure (on page 239).

We suggest the recovery procedure below.

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Step 8. Set Correct NTFS Permissions and Owner for the Home Directory	451

Step 1. Back Up User Content

- 1 Stop IIS by running the following commands from the command prompt:

```
iisreset /stop  
net stop w3svc  
net stop ftp
```

- 2 Rename the directory containing Parallels H-Sphere user homes. It will be used later to recover user content. If you don't have access to user homes, you'll have to recover user content from a backup.
- 3 Start IIS:

```
iisreset /start
```

- 4 Create an empty HSHOME directory

Step 2. Install Parallels H-Sphere

- 1 Make sure to have IIS (WebService) and FTP (IIS or Serv-U) installed. For information on IIS, run from the command prompt:

```
%SystemRoot%\System32\Inetsrv\iis.msc
```

For information on Serv-U FTP, check the task manager or Service Manager (full name : Serv-U FTP Server, short name: servu)

FTP can be missing if the server is running only MS SQL.

- 2 Follow Winbox preinstallation procedure as suggested in the Winbox Installation Guide.
- 3 Follow Winbox installation procedure.
- 4 After the installation, set up WebShell4.

Step 3. Set Up Dedicated IPs

- 1 Go to the Parallels H-Sphere admin control panel and select the Winbox in L.Servers of the E.Manager -> Servers menu.
- 2 Copy all Busy Dedicated IPs and their netmasks from the list of IPs into a text file the IPs to create a file with the following format:

```
192.0.34.166 255.255.255.0  
160.79.224.130 255.255.255.0  
81.3.94.100 255.255.255.0
```

- 3 Download IpCreator:
<http://download.hsphere.parallels.com/shiv/WinBox/ipcreator.exe>.
- 4 Bind IPs using the IpCreator utility, passing the file with IPs as a parameter:

```
IpCreator.exe FILE_WITH_IPS > log.txt
```


Step 4. Prepare Target Winbox for Physical Creator

- 1 In the command prompt of the Winbox server, run:

```
net stop HsQuotas
```

- 2 Remove the content of the HSphere\skeleton directory.
- 3 Put file skeleton_empty.exe (http://download.hsphere.parallels.com/shiv/WinBox/skeleton_empty.exe) in the HSphere\skeleton directory.
- 4 Run skeleton_empty.exe with the '-dir' parameter:

```
skeleton_empty.exe -dir
```

Note: when you finish the recovery, make sure you restored skeleton by means of Parallels H-Sphere updater for your version: `hsinst<your_hs_version>.exe`

Step 5. Run PhysicalCreator on the CP Box

- 1 Go to the Parallels H-Sphere admin control panel, select **P.Servers** of the **E.Manager** -> **Servers** menu, and click server info for the Winbox in question.
- 2 Check if server info shows on the page that appears. If not, the CP server can't communicate with the Winbox; make sure to fix this issue before proceeding.
- 3 Download tail utility for Windows (<http://download.hsphere.parallels.com/shiv/WinBox/tail.exe>) and put it into the WINDOWS (win2003) or WINNT (win2000) directory.
- 4 Log into the system database (on page 65) and run the following DB query to find out the number of domains to create:

```
select count(*) from iis vhost i,parent_child p,accounts a,user_account ua where i.id=p.child_id and p.account_id = a.id and a.deleted is null and ua.account_id = a.id and (a.demo <> 1 OR demo IS NULL) and host_id = ???;
```

replacing ??? with the ID of the logical server you are recovering.

- 5 Run PhysicalCreator as the cpanel user (on page 65):

```
java -Xms64M -Xmx512M psoft.hsphere.tools.PhysicalCreator -rg winweb -co -lid LOGICAL_SERVER_ID > creator.log 2>&1 &
```

- 6 In the command line on the Winbox, run `tail -f action.log` to monitor the creation of Winbox resources.
- 7 In another command line window, periodically check the number of created domains by running:

```
find "CreateWebHost(" <HS_DIRECTORY>\logs\action.log /c
```

for example:

```
find "CreateWebHost(" d:\hsphere\logs\action.log /c
```

Step 6. Restore Content from Backup

- 1 Update Parallels H-Sphere to restore original skeleton and renamed scripts.
- 2 Back up IIS metabase using built-in IIS backup tools.
- 3 Stop IIS:

```
iisreset /stop
net stop w3svc
net stop ftp
```

- 4 Copy user content to the directory for user homes.
- 5 Start IIS:

```
iisreset /start
```

- 6 In the command prompt of the Winbox server, run:

```
net start HsQuotas
```

Step 7. Install Shared SSL

- 1 In the admin control panel, install completely new Certificate key and file pair as described in Parallels H-Sphere Service Administrator Guide. You can get them in `/hsphere/shared/apache/conf/ssl.shared/<domain.name>/` on any Unix/Linux web server. This will repost the wildcard certificate on all servers, including the Winbox you are recovering.
- 2 Download Recreation scripts (<http://download.hsphere.parallels.com/shiv/WinBox/ReCreateAddScripts.zip>) in a zip archive and unpack them to a separate directory on the Winbox, for example `recreation_scripts`.

- 3 Log into the system database (on page 65) and run the following DB query to select the domain names with shared SSL enabled:

```
select s.name,hostnum,d.name from shared_ssl s, parent_child
p1, parent_child p2, domains d, iis_vhost h where s.id =
p1.child_id and p1.parent_id = p2.child_id and p2.parent_id =
d.id and p2.child_id = h.id and h.host_id= ???;
```

replacing ??? with the ID of the logical server you are recovering.

- 4 Copy results of the query into a text file in the `recreation_scripts` directory and name it, for instance, `S_SSL.txt`. It will have the following format:

```
sname1 | hostnum1 | domain_name1
sname2 | hostnum2 | domain_name2
...
snameN | hostnumN | domain_nameN
```

where:

`snameX` is the third level domain secured with the wildcard certificate, e.g. `user22.yourdomain.com`

hostnumX is the domain ID in IIS

domain_nameX is the corresponding second level domain, e.g. user22.com.

- 5 Enter the `recreation_scripts` directory and run the following command:

```
sslprepare.bat %1 %2 %3 %4 %5 > SetSSL.txt
```

where:

rem %1 is the file name you have created (e.g. S_SSL.txt)

rem %2 - Winbox IP

rem %3 - Service domain used for shared SSL

rem %4 - Parallels H-Sphere login used at Winbox installation

rem %5 - Parallels H-Sphere password used at Winbox installation.

- 6 Open `SetSSL.txt` and remove the first part leaving only the list of links.
- 7 Run the following command:

```
WGET.EXE -i SetSSL.txt
```

This will recreate all Shared SSL resources on the Winbox.

Step 8. Set Correct NTFS Permissions and Owner for the Home Directory

- 1 Download SetScri Tool:
<http://download.hsphere.parallels.com/shiv/WinBox/SetScriNs20.exe>
- 2 Run it to set correct owner and NTFS permissions on user home directories:

```
SetScriNs20 /ftp:<number> /users:<file>
```

where:

ftp - default Parallels H-Sphere ftp host number

users - user list file

- 3 Check the log files for report.

Note: Read on NTFS Permissions (on page 268)

Recovering Winbox Quota

➤ *To recover Winbox quota:*

- 1 Download Recreation scripts (<http://download.hsphere.parallels.com/shiv/WinBox/ReCreateAddScripts.zip>) in a zip archive and unpack them to a separate directory on the Winbox, for example `recreation_scripts`.

- 2 Log into the system database (on page 65) and run the following DB query to select the users and their space limit:

```
select unix_user.login, quotas.size mb from unix_user,
parent_child, quotas where hostid=??? and
parent_child.parent_id=unix_user.id and
parent_child.child_id=quotas.id and
parent_child.child_type=4001;
```

replacing ??? with the ID of the logical server you are recovering.

- 3 Copy results of the query into a text file in the `recreation_scripts` directory and name it, for instance, `quotat.txt`.
- 4 Enter the `recreation_scripts` directory and run the following command:

```
Rquota.bat %1 %2 %3 %4 > quota.txt
```

where:

`rem %1` - file name, e.g. `quota.txt`

`rem %2` - Winbox IP

`rem %3` - Parallels H-Sphere login used at Winbox installation

`rem %4` - Parallels H-Sphere password used at Winbox installation

- 5 Open `quota.txt` and remove the first part leaving only the list of links.
- 6 Run the following command:

```
WGET.EXE -i quota.txt
```

This will recreate quota resource on the Winbox.

Miva

Like all third party commercial products, Miva Empresa and Miva Merchant are purchased and installed separately from Parallels H-Sphere. Miva Merchant (<http://www.miva.com/products/merchant>) requires Miva Empresa (<http://www.miva.com/products/empresa>) also known as Miva Virtual Machine or 'mivavm' for web server XML scripting, e-commerce and database capabilities.

- Miva Merchant 5.x is supported starting with Parallels H-Sphere 2.4.3 Patch 1 inclusive. It requires Miva Empresa 5.02 and higher.
- Miva Merchant 4.14 and later is supported from Parallels H-Sphere 2.3 RC 4 inclusive. It requires Miva Empresa 4.02 and higher.

For extensive coverage of Miva products, please visit <http://www.miva.com/products>.

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Miva Installation for *nix

Requirements

- Installed and properly configured Parallels H-Sphere system.
- One valid Miva Empresa license.
- At least one valid Miva Merchant license.

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Miva Empresa Installation

➤ *To install Miva Empresa:*

- 1 Log into the web server as root.
- 2 Change directory to `/hsphere/shared/miva`. If you don't have this directory, create it first and set ownership to `root:root` and permissions to `755`:

```
mkdir /hsphere/shared/miva
chown root:root /hsphere/shared/miva
chmod 755 /hsphere/shared/miva
```

- 3 Download Miva virtual machine distribution file from <http://www.miva.com/products/empresa/download/> to `/hsphere/shared/miva`.

Linux: `mivavm-vX.XX-linux_glibc2.tar.gz`

FreeBSD: `mivavm-vX.XX-freebsd_45.tar.gz`

Here, `mivavm` is the product name, `vX.XX` its version name, `linux_glibc2` is Linux glibc2 package, `freebsd_45` is FreeBSD 4.5 operation system.

- 4 Untar the unloaded file:

```
tar xzf <DistributionFileName>
```

- 5 Move the content of the directory `mivavm-vX.XX` to `/hsphere/shared/miva`:

```
mv mivavm-vX.XX/* .
rm -rf mivavm-vX.XX
```

- 6 Set ownership to `root:root` on the content of the directory `/hsphere/shared/miva`:

```
chown -R root:root /hsphere/shared/miva
```

- 7 Move file `cgi-bin/mivavm-vX.XX` to directory `/hsphere/shared/miva`:

```
mv cgi-bin/mivavm-vX.XX mivavm
```

- 8 If you need to use commerce libraries you got from Miva, copy them to directory `lib/commerce`, then create links to them as follows:

```
ln -s /hsphere/shared/miva/lib/commerce/uupsrss-vX.XX-linux-
glibc2.so
/hsphere/shared/miva/lib/commerce/uupsrss.so
ln -s /hsphere/shared/miva/lib/commerce/cybercash-vX.XX-linux-
glibc2.so
/hsphere/shared/miva/lib/commerce/cybercash.so
ln -s /hsphere/shared/miva/lib/commerce/ics2-vX.XX-linux-
glibc2.so /hsphere/shared/miva/lib/commerce/ics2.so
ln -s /hsphere/shared/miva/lib/commerce/linkpoint-vX.XX-linux-
glibc2.so
/hsphere/shared/miva/lib/commerce/linkpoint.so
```

```
ln -s /hsphere/shared/miva/lib/commerce/authnet-vX.XX-linux-
glibc2.so
/hsphere/shared/miva/lib/commerce/authnet.so
```

- 9 If you have more than one web server, repeat the above steps for all web servers where you want to have Miva installed.

When the Miva Empresa resource is turned on:

- In the domain home directory (/hsphere/local/home/<user_name>/<domain_name>/), the cgi-bin is created the `mivavm` and `mivavm.conf` files are copied to this `cgi-bin` directory
- the `libmivaconfig.so` symlink to /hsphere/shared/miva/lib/config/3x.so is created there
- In the user home directory (/hsphere/local/home/<user_name>/), create the `mivadata` directory, and the <domain_name> subdirectory there, with the same name as the domain subdirectory in the user home directory.
- In the Apache configuration file for this domain, the Miva compiled script MIME type is added:
application/x-miva-compiled .mvc

Here,

- `mivavm` is a CGI application that executes compiled Miva scripts;
- `mivavm.conf` is the Miva Empresa configuration file.

The `mivavm.conf` file may look like this:

```
mivaroot=&[document_root]

stdmodatadir=/hsphere/local/home/miva/mivadata/miva.com

securityoptions=15

<COMMERCE-LIB METHOD= "UPSCost"
LIBRARY="/hsphere/shared/miva/lib/commerce/upsrss.so">

<COMMERCE-LIB METHOD= "CyberCash"
LIBRARY="/hsphere/shared/miva/lib/commerce/cybercash.so">

<COMMERCE-LIB METHOD= "ICS2"
LIBRARY="/hsphere/shared/miva/lib/commerce/ics2.so">

<COMMERCE-LIB METHOD= "LinkPoint"
LIBRARY="/hsphere/shared/miva/lib/commerce/linkpoint.so">

<COMMERCE-LIB METHOD= "AuthorizeNet"
LIBRARY="/hsphere/shared/miva/lib/commerce/authnet.so">

<BUILTIN-LIB LIBRARY =
"/hsphere/shared/miva/lib/builtins/crypto.so">

<BUILTIN-LIB LIBRARY =
"/hsphere/shared/miva/lib/builtins/system.so">
```

```
<BUILTIN-LIB LIBRARY =  
"/hsphere/shared/miva/lib/builtins/file.so">  
  
<BUILTIN-LIB LIBRARY =  
"/hsphere/shared/miva/lib/builtins/math.so">  
  
<BUILTIN-LIB LIBRARY =  
"/hsphere/shared/miva/lib/builtins/string.so">  
  
<BUILTIN-LIB LIBRARY =  
"/hsphere/shared/miva/lib/builtins/time.so">  
  
cadir=/hsphere/shared/miva/certs  
  
openssl=/usr/lib/libssl.so  
  
openssl_crypto=/usr/lib/libcrypto.so
```

where:

- `mivaroot` is the Miva Web root directory, the same as the domain's DocumentRoot directory
- `stdmodatadir` is a directory where Miva Empresa data is stored
- `COMMERCE-LIB METHOD` is a *Payment Instrument*, a commercial library to support automatic payments from credit cards via merchant gateway
- `BUILTIN-LIB LIBRARY` is a standard (built-in) library that contains basic system functions
- `cadir` is a directory with SSL certificates
- `openssl` is the path to the OpenSSL library
- `openssl_crypto` is the path to encryption libraries

Miva Merchant Installation

➤ **To install Miva Merchant:**

- 1 Log into the web server as root.
- 2 Copy file `Merchant-vY.YY-bundle.tar.gz` to `/hsphere/shared/miva.vY.YY` is Miva Merchant version.
- 3 Create a link to `Merchant-vY.YY-bundle.tar.gz`:

```
ln -s /hsphere/shared/miva/Merchant-vY.YY-bundle.tar.gz Merchant-bundle
```
- 4 In the admin control panel, select **Globals** in the **Plans** menu and make sure Miva Empresa Engine and MIVA Resource are enabled.
- 5 Select **L.Servers** in the **E.Manager** -> **Servers** menu, then click the web server, and at the bottom of the page that appears select the version of Miva Merchant:

Additional options	
Miva Merchant version	<div>Miva Merchant v5.00 or later ▼</div> <div>Set</div>
Location of Miva Merchant bundle	<div>C:\MivaMerchant +</div> <div>Set</div>

- 6 If you have more than one web server, repeat the above steps for all web servers where you want to have Miva installed.
- 7 Log into your admin Control Panel, select **Miva Merchant Lic.** in the **3rd party Tools** menu and enter your Miva Merchant licenses :

Notes:

- Login and Password for Miva admin interface are the same as for FTP unless a user has activated the original Miva Merchant setup.
- If Miva is enabled, the user can't remove the cgi-bin directory and CGI handler with the `.cgi` extension in Parallels H-Sphere.
- `mivadata` and all its content is not removed when Miva resource is removed.
- To make Miva work via SSL (https), an SSL certificate is required. If a user cannot connect to Miva site by SSL (https://), log into your Miva Merchant control panel via http, go to the *Domain Settings* page -> Site configuration tab and check secure URLs.
- You can install two instances of Miva on one logical server, one version 4.12 and older, the other 4.14 or later.
- To enable Miva Merchant Follow Symlinks in `mivaroot` and `stddatadir`, you need to add the following line into the `miva.conf` file:

```
securityoptions=15
```

Miva Installation for Windows

It is recommended to install Miva products prior to Parallels H-Sphere Winbox software. If you choose to do so, simply install Miva Empresa and Miva Merchant following Miva documentation. Afterwards, install Parallels H-Sphere winbox software, and the installation wizard will guide you through the Miva configuration procedure.

➤ **To install Miva on a running Winbox:**

- 1 Install Miva Empresa VM as described at http://docs.mivamerchant.com/en-US/merchant/WebHost/webhelp/install_miva_empresa_vm_on_windows_2000_server.htm.
- 2 Install Miva Merchant as described in Miva documentation at http://docs.mivamerchant.com/en-US/merchant/WebHost/webhelp/web_host_resources.htm.

Note: Since version 3.1, Parallels H-Sphere supports only Miva 5 for Windows platforms. If you move to Miva 5 and need to upgrade Miva Merchant stores, follow the instructions at http://docs.mivamerchant.com/en-US/merchant/WebHost/webhelp/upgrade_to_merchant_5_from_merchant_4.htm.

- 3 Go to your admin control panel, select **E.Manager** -> **L.Servers**, click the Windows server, and at the bottom of the page that appears specify the version of Miva Merchant. Specify also its location on your box:

Additional options	
Miva Merchant version	<input type="text" value="Miva Merchant v5.00 or later"/> <input type="button" value="Set"/>
Location of Miva Merchant bundle	<input type="text" value="C:\MivaMerchant"/> <input type="button" value="+"/> <input type="button" value="Set"/>

- 4 Run Parallels H-Sphere Update Wizard from the administrator control panel.
- 5 Optionally, install miva commerce libraries.
- 6 Log into your admin Control Panel, select **Miva Merchant Lic.** in the **3rd party Tools** menu and enter your Miva Merchant licenses.
- 7 Enable Miva in your hosting plans.

Once you have enabled Miva, users can turn them on in their control panels. User's miva login and password are same as for FTP.

Updating Miva 4 to Miva 5

We do not support Miva 4 and Miva 5 running on the same web server. To upgrade Miva Merchant and Miva Empresa, you need to uninstall version 4 and then set up version 5.0.

Since these two versions use different system libraries, customer stores also need to be updated to Miva 5.

To update the stores, please use Miva tools, as we do not provide any update utilities.

Urchin

This chapter describes how to install Urchin 4 and Urchin 5 on your Parallels H-Sphere servers.

Urchin 4 and 5 can be installed on any Parallels H-Sphere *nix server. It does not require any special configuration and once installed, can poll statistics from all web servers and winboxes.

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Urchin 4 and 5 Installation on Unix

➤ *To install Urchin:*

- 1 Go to the Urchin home page (<http://www.google.com/urchin/index.html>) and click the Download link.
- 2 Select the installer that most closely matches your platform. The name of the installer includes the Urchin version and the operating system type (e.g., `urchin4100_redhat6x.sh`).

Note: Currently, only versions 5.7.03 and below are supported.

If necessary, upload the installer to a temporary location on the system where you are installing Urchin. If you are not on the console, telnet (or use ssh if available) to the system and cd to the directory where the installer is located.

- 3 From the command line, type the name of the installer. For example:

```
./urchin4100_redhat7x.sh
```

This unpacks the files that comprise the installation kit.

- 4 From the command line, execute the main installation script by typing:

```
./install.sh
```

The script prompts you for input as needed; just follow the instructions.

- 5 Following the instructions of the manual, configure Urchin in the directory `/hsphere/local/urchin`.

Note: Urchin port and owner can be set by default (9999, nobody).

- 6 Create directory `/hsphere/local/urchin/var/logs` by running:

```
mkdir /hsphere/local/urchin/var/logs
```

- 7 Set directory owner the same as for Urchin on step 5:

```
chown nobody:nobody /hsphere/local/urchin/var/logs
```

Important: Make steps 8-12 on all web boxes.

- 8 Check `httpd.conf` for Script Alias directive in the shared IP Virtual Host (usually `/hsphere/local/sqwebmail` directory). If this directory doesn't exist - create it with 755 permissions.

- 9 Copy `print-log.pl` script from the `/hsphere/shared/scripts` directory:

```
cp /hsphere/shared/scripts/print-log.pl
/hsphere/local/sqwebmail/cgi-bin/
```

- 10 Set 755 permissions for this script:

```
chmod 755 /hsphere/local/sqwebmail/cgi-bin/print-log.pl
```

- 11 Create loglist file:

```
touch /hsphere/local/sqwebmail/cgi-bin/loglist
```

12 Set owner and group for this file to httpd:

```
chown httpd:httpd /hsphere/local/sqwebmail/cgi-bin/loglist
```

13 In the `hsphere.properties` file, configure the following variables:

- `URCHIN_SERVER_ID = [URCHIN_SERVER_ID]`
ID of the logical server where Urchin is installed. You can get the logical server ID in E.Manager
- `URCHIN_PORT = [URCHIN_PORT]`
the port taken by Urchin
- `URCHIN_SCHEDULER_START = [URCHIN_SCHEDULER_START]`
- `URCHIN_SCHEDULER_FINISH = [URCHIN_SCHEDULER_FINISH]`
the hours when statistics is collected. e.g, 2 and 4 means statistics will be collected between 2 and 4 AM
- `URCHIN_PROTOCOL = [URCHIN_PROTOCOL]`
the protocol to connect to the Urchin control panel, can be http or https. The default is http
- `URCHIN_SERVERNAME = [URCHIN_SERVERNAME]`
Urchin server URL, should be set in addition to `URCHIN_SERVER_ID` on systems with NAT support (on page 28) (the Urchin server in this case has a local IP). In other cases, you should comment out or skip setting this parameter.

14 Restart Parallels H-Sphere (on page 54) for changes to take effect.

Urchin 4 and 5 Installation on Windows

- 1 Install Urchin as instructed by the Urchin Installation Guide (Windows) at <http://www.google.com/support/urchin45/bin/answer.py?answer=28546&topic=7372>.
- 2 Log in to Parallels H-Sphere control panel server as root.
- 3 In the `hsphere.properties` file, configure the following variables:
 - `URCHIN_SERVER_ID = <LSERVER_ID>`
ID of the logical server where Urchin4 is installed
 - `URCHIN_PORT = <SERVER_PORT>`
port where Urchin is installed
 - `URCHIN_SCHEDULER_START = <SCHEDULER_START_HOUR>`
 - `URCHIN_SCHEDULER_FINISH = <SCHEDULER_STOP_HOUR>`
the hours when statistics is collected, e.g. between 2 and 4
 - `URCHIN_PROTOCOL = <PROTOCOL>`
the protocol to connect to the Urchin control panel, e.g., http or https.
- 4 Restart HSphere (on page 54) for changes to take effect.

Urchin 4 And Urchin 5 Database Utilities

Urchin Database Utilities

Urchin 4/5 installation includes utilities to insert, edit, and delete records in Urchin database. The only two ways to change data in Urchin internal database are through Urchin Control Panel or by the means of Urchin database utilities.

The following Urchin database utilities are located in the `util` subdirectory of the Urchin installation directory (`/hsphere/shared/urchin` for Unix, `C:\Program Files\Urchin` for Windows):

- **uconf-import** (not used for Parallels H-Sphere Windows accounts) is a utility that imports XML data to Urchin database. XML data may be transferred to the standard input or taken from an XML file.

For more details on *uconf-import* options, see the manual on the Urchin Documentation Center at <http://help.urchin.com/index.cgi?id=1489>

- **uconf-driver** (**uconf-driver.exe** for Windows) is a utility that allows inserting, deleting or updating database tables. Visit Urchin Documentation Center for the *uconf-driver* options at <http://help.urchin.com/index.cgi?id=1051>.

Urchin Database Tables

- 1 **Logfile** is the table that holds log file locations. In Parallels H-Sphere, Urchin log files are accessed remotely via HTTP protocol. Log file is returned by the `print-log.pl` script.

Here is an example of XML representation of a *Logfile* table record:

```
<Logfile Name="urchin.com">
  ct_name=urchin.com
  cr_type=remote
  ct_loglocation=/hsphere/local/urchin/var/logs/
  cr_protocol=http
  ct_server=63.212.171.4
  ct_port=80
  ct_remotelocation=cgi-bin/print-
log.pl?urchin&urchin.com&xgyvijmuxpuad07p1w/nuw==&.gz
  cs_logformat=ncsa
</Logfile>
```

Field description:

Field name	XML Representation	Description
Name	<Logfile Name="urchin.com"	Record name, coincides with the domain name in

	">	Parallels H-Sphere.
ct_name	ct_name=urchin.com	The name of a domain where statistics is collected.
cr_type	cr_type=remote	Type of access to log files; it is always "remote" in Parallels H-Sphere
ct_loglocation	ct_loglocation=/hsphere/local/urchin/var/logs/	On remote access to this directory, log files with Web boxes' collected statistics are taken.
cr_protocol	cr_protocol=http	Protocol used to access log files; it is always "http" in Parallels H-Sphere;
ct_server	ct_server=63.212.171.4	IP of the logical server where log files are located.
ct_remotelocation	ct_remotelocation= cgi-bin/print-log.pl?urchin&urchin.com&xgyvijm uxpuad07plw/nuw= =&.gz	Location of log files; in Parallels H-Sphere, it is set as the URI of a CGI script that collects statistics from remote log files, with a query string containing the script parameters.
cs_logformat	cs_logformat=ncsa	Log file format: ncsa for Unix, w3c for Windows.

2 Profile is a table used to access statistics in the form of charts, diagrams, etc.

Here is an example of XML representation of a *Profile* table record:

```
<Profile Name="urchin.com">
  ct_name=urchin.com
  ct_website=http://urchin.com
  ct_reportdomains=urchin.com,www.urchin.com
  cs_llist="urchin.com"
</Profile>
```

Table field description:

Field name	XML Representation	Description
Name	<Profile Name="urchin.com">	Record name, coincides with the domain name in Parallels H-Sphere.
ct_name	ct_name=urchin.com	The name of a domain where statistics is being collected.
ct_website	ct_website=http://urchin.com	Web site URL.
ct_reportdomains	ct_reportdomains=urchin.com,www.urchin.com	Possible ways to access domain, domain names

		separated with commas
cs_llist	cs_llist="urchin.com"	The domain where log file is located; this field is used to link this table to the <i>Logfile</i> table.

- 3 User** is the table where the list of users is stored. User names are identical to Parallels H-Sphere account names. Access to reports is also set in this table.

Here is an example of XML representation of a *Users* table record:

```
<User Name="Urchin">
  ct_name=Urchin
  ct_password=USCC|3980261512
  cs_rlist="urchin.com"
</User>
```

Table field description:

Field name	XML Representation	Description
Name	<User Name="Urchin">	Record name, coincides with the domain name in Parallels H-Sphere.
ct_name	ct_name=Urchin	User name.
ct_password	ct_password=USCC 3980261512	User's password.
cs_rlist	cs_rlist="urchin.com"	The list of available reports.

- 4 Task** is the table that contains tasks for collecting statistics.

Here is an example of XML representation of a *Task* table record:

```
<Task Name="urchin.com">
  ct_name=urchin.com
  cr_frequency=5
  cs_hour=4
  cs_minute=0
</Task>
```

Field name	XML Representation	Description
Name	<Task Name="urchin.com">	Record name, coincides with the domain name in Parallels H-Sphere.
ct_name	ct_name=urchin.com	Domain name.
cr_frequency	cr_frequency=5	Task launching frequency; 5 means it would launch every 24 hours.
cs_hour cs_minute	cs_hour=4, cs_minute=0	Task launching time.

RealServer

Parallels H-Sphere supports all versions of RealServer that have ISPHosting support. If your license does not support ISPHosting, contact your RealServer account representative to obtain a license key that has the same number of streams and properly enables ISP hosting.

In this chapter:

RealServer Installation for Unix	468
RealServer Installation for Windows	474
RealServer Config File Example	474

RealServer Installation for Unix

RealServer can be installed on a web box or a separate box with apache.

➤ **To install RealServer for Unix:**

- 1 Install RealServer with ISPHosting support on a web box or a separate box into /hsphere/shared/RealServer as instructed by RealServer documentation at <http://www.realnetworks.com/products/server/>. If you set it up on a web box, specify 8080 port instead of the default 80, which is used by apache. During the installation, note the following data, as you will need them on subsequent steps:

- RealServer IP
- RealServer Admin Port
- Administrator Login
- Administrator Password

- 2 Add the following line to the RealServer crontab:

```
0 7 * * * nice -15  
/hsphere/shared/scripts/cron/rmserver_analyze.pl
```

- 3 Launch RealServer with the following command:

```
/hsphere/shared/RealServer/Bin/rmserver rmserver.cfg &
```

- 4 Log into your RealServer interface using administrator login and password. To get there, type this URL in address field of your browser:

```
http://RS_IP:ADMIN_PORT/admin/index.html
```

replacing RS_IP and ADMIN_PORT with the RealServer IP and admin port you were given during the installation.

- 5 In the left menu, select *Server Setup -> Mount Points*.
- 6 In the form that appears, add mount point /shiva/ -> /hsphere/local/home:

Server Setup

[Ports](#)
[IP Binding](#)
[MIME Types](#)
[Connection Control](#)
[Redundant Servers](#)

Mount Points

[URL Aliasing](#)
[HTTP Delivery](#)
[Cache Directives](#)
[Shared Licensing](#)
[User/Group Name](#)
[Media Samples](#)

Security**Logging & Monitoring****Broadcasting****Content Management**

point. Its default base path is the Content subdirectory under your server installation directory. Modify the base path of the main "/" mount point only if the base path does not reflect the location of your media files.

Mount Points

Pending Changes [HELP](#)

Mount Point Description	Edit Description
RNCache Local File System	shiva
RealSystem Content	Mount Point
RealSystem Secure Content	/shiva/
shiva	Base Path
	/hsphere/local/hon
	Base Path Location
	Local
	Cacheable by
	Caching
	Subscribers
	Yes

*A server restart is required to effect changes applied to this page.

[Apply](#)
[Reset](#)

- 7 Click *Apply*. The status window will open:

Helix Administrator

Configuration Change Results

Property	Action Taken	Status
RealSystem Secure Content UseContentDistribution	Set to 1	Succeeded
shiva BasePath	Set to /hsphere/local/home	Succeeded
shiva ShortName	Set to pn-local	Succeeded
shiva MountPoint	Set to /shiva/	Succeeded
shiva UseContentDistribution	Set to 1	Succeeded
RNCache Local File System UseContentDistribution	Set to 1	Succeeded

Close

Close this window.

- 8 Click *Restart Server* in the upper right corner of the browser window to restart RealServer:

Helix Administrator

[Help](#) | [Readme](#) | [Tech Support](#) | [About](#)

Pending Changes
Reload Pages
Restart Server

Close

- 9 Select *Content Management* -> *ISP Hosting* in the left menu:



- 10 In the ISP Hosting form, add the following settings:

Translation Mounts: user

User List File Name: /hsphere/local/config/RealServer/user.list

Description: users

Mount Point: /shiva/

User Path: /shiva/

→ **ISP Hosting** HELP

Translation Mounts +

users

Edit Translation Mount Description

users

Mount Point

/shiva/

Create mount point for ISP content.

User Path

/shiva/

User List File Names +

/hsphere/local/config/RealServer/user.list

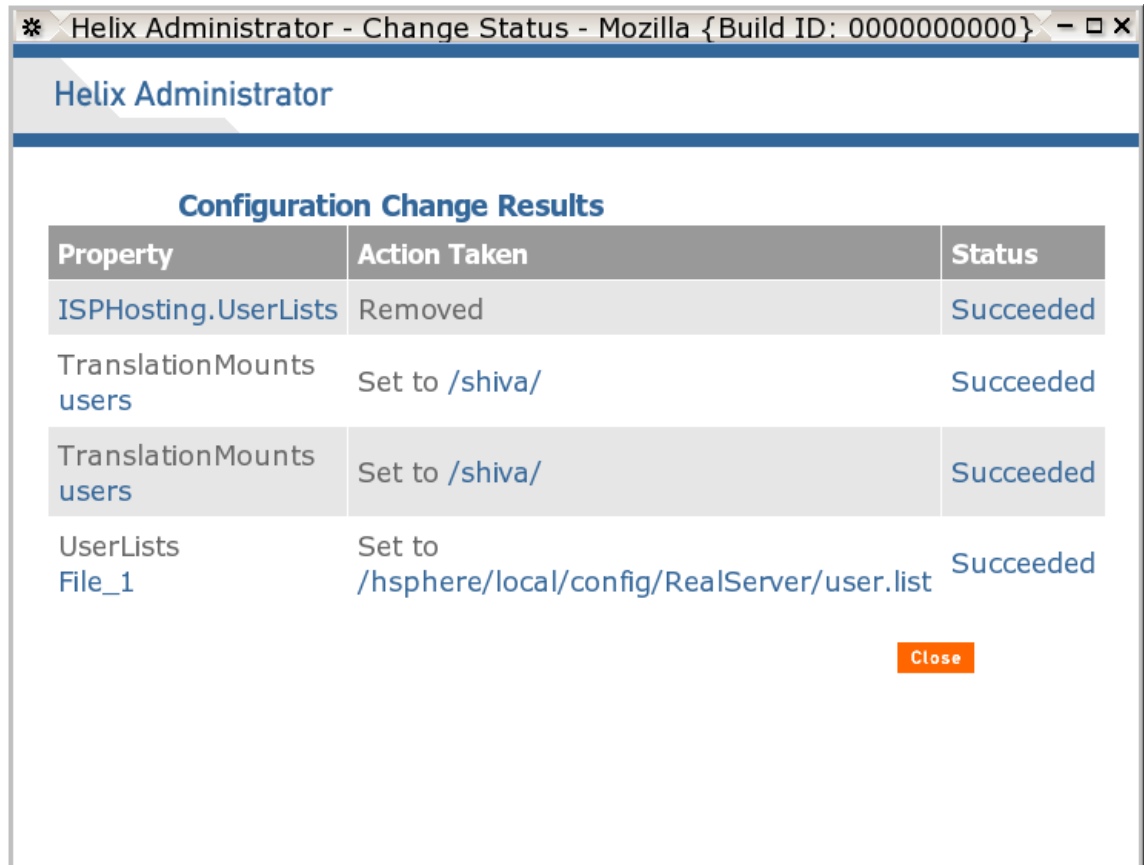
Edit User List File Name

onfig/RealServer/user

***A server restart is required to effect changes applied to this page.**

→ **Apply** **Reset**

11 Click *Apply*. The status window will open:



Close this window.

- 12 Click *About* in the upper left corner of the browser window:



You will get a window with information about your license.

- 13 Go to the admin control panel and add the box to Parallels H-Sphere as suggested in Adding Servers Step-By-Step of the Service Administrator Guide.
- 14 Now you can proceed to RealServer settings that are not related to Parallels H-Sphere.

Here is an example of RealServer configuration file:

<http://hsphere.parallels.com/HSdocumentation/sysadmin/rmserver.cfg.html>.

RealServer Installation for Windows

➤ *To install RealServer for Windows:*

- 1 Install RealServer with ISPHosting support
- 2 Add mount point `/shiva/ -> /user's_home_directory`
 *You can learn your home directory in the `conf.inc` file, next to the `UserHome` line.
- 3 Restart RealServer.
- 4 After that, at the ISPHosting page in the **Translation Mounts** window:
 add users (Description: users; Mount Point: `/shiva/`; User Path: `/shiva/`)
 add user list (Edit User List File Name in the directory where Parallels H-Sphere is installed: `/HSPHERE/RealServer/user.list`)

RealServer Config File Example

```
<!-- S Y S T E M -->
<Var ProcessorCount="1"/>
<!-- P A T H S -->
<Var LogPath="/var/hsphere/rmserver/rmaccess.log"/>
<Var ErrorLogPath="/var/hsphere/rmserver/rmerror.log"/>
<Var PidPath="/var/hsphere/rmserver/rmserver.pid"/>
<Var PluginDirectory="/hsphere/shared/RealServer/Plugins"/>
<Var SupportPluginDirectory="/hsphere/shared/RealServer/Lib"/>
<Var LicenseDirectory="/hsphere/shared/RealServer/License"/>
<!-- P O R T S -->
<!--UNIX customers must have root privileges to execute the server -->
<!--with the RTSP port set to 554. -->
<!--The following are the default ports that RealPlayer and -->
<!--RealPlayer Plus clients will connect to for an URL that has -->
<!--no port specified: --> <!-- RTSP: 554 --> <!-- PNM: 7070 -->
<!-- HTTP: 80 (...then 8080 if 80 is unavailable) -->
<Var RTSPPort="554"/>
<Var PNAPort="7070"/>
<Var HTTPPort="8080"/>
<Var MonitorPort="9090"/>
<Var AdminPort="27781"/>
<!-- P A S S W O R D S -->
<Var MonitorPassword="123456"/>
<!-- A L L O W A N C E -->
<Var ValidPlayersOnly="0"/>
<Var EnableCookieBasedIDs="0"/>
<!-- L O G G I N G -->
<Var LoggingStyle="5"/> <Var StatsMask="3"/>
<!-- L I V E A R C H I V I N G -->
<List Name="LiveArchive">
  <List Name="*">
    <Var TargetDirectory="/Archive"/>
    <Var BandwidthNegotiation="0"/>
    <Var FileSize="0"/>
```

```

        <Var FileTime="0m0h0d"/>
        <Var NoArchive="0"/>
    </List>
</List>
<!-- H T T P S U P P O R T -->
<List Name="HTTPTDeliverable">
    <Var Path_0="/admin"/>
    <Var Path_1="/ramgen"/>
    <Var Path_2="/farm"/>
    <Var Path_3="/httpfs"/>
    <Var Path_4="/viewsource"/>
</List>
    <!-- <Var Path_0="/scalable"/> -->
<!-- M I M E T Y P E S -->
<List Name="MimeTypes">
    <List Name="text/html">
        <Var Ext_1="html"/>
        <Var Ext_2="htm"/>
    </List>
    <List Name="audio/x-pn-realaudio">
        <Var Ext_1="ram"/>
    </List>
    <List Name="image/gif">
        <Var Ext_1="gif"/>
    </List>
    <List Name="image/jpg">
        <Var Ext_1="jpg"/>
        <Var Ext_2="jpeg"/>
    </List>
</List>
<!-- A U T H E N T I C A T I O N -->
<List Name="AuthenticationRealms">
    <List Name="SecureAdmin">
        <Var Realm="ultra.shiva.AdminRealm"/>
        <List Name="BasicAuthenticator">
            <Var PluginID="rn-auth-basic"/>
            <Var DatabaseID="Admin_Basic"/>
        </List>
    </List>
    <List Name="SecureEncoder">
        <Var Realm="ultra.shiva.EncoderRealm"/>
        <List Name="RN5Authenticator">
            <Var PluginID="rn-auth-rn5"/>
            <Var DatabaseID="Encoder_RN5"/>
        </List>
    </List>
    <List Name="SecureContent">
        <Var Realm="ultra.shiva.ContentRealm"/>
        <List Name="RN5Authenticator">
            <Var PluginID="rn-auth-rn5"/>
            <Var DatabaseID="Content_RN5"/>
        </List>
    </List>
</List>
<!-- C O M M E R C E -->
<List Name="CommerceRules">
    <List Name="SecureUserContent">
        <Var ProtectedVirtualPath="/secure"/>
        <Var Realm="ultra.shiva.ContentRealm"/>
        <!-- <Var UseGUIDValidation="True"/ -->
    </List>
</List>

```

```

        <Var EvaluatePermissions="0"/>
        <Var DatabaseID="Content_RN5"/>
        <!-- <Var AllowDuplicateIDs="True"/ -->
    </List>
    <List Name="SecureG2LiveContent">
        <Var ProtectedVirtualPath="/encoder/secure"/>
        <Var Realm="ultra.shiva.ContentRealm"/>
        <!-- <Var UseGUIDValidation="True"/ -->
        <Var EvaluatePermissions="0"/>
        <Var DatabaseID="Content_RN5"/>
        <!-- <Var AllowDuplicateIDs="True"/ -->
    </List>
    <List Name="SecurePreG2LiveContent">
        <Var ProtectedVirtualPath="/live/secure"/>
        <Var Realm="ultra.shiva.ContentRealm"/>
        <!-- <Var UseGUIDValidation="True"/ -->
        <Var EvaluatePermissions="0"/>
        <Var DatabaseID="Content_RN5"/>
        <!-- <Var AllowDuplicateIDs="True"/ -->
    </List>
    <List Name="SecurePlayerContent">
        <Var ProtectedVirtualPath="/secure/player"/>
        <Var UseGUIDValidation="0"/>
        <Var EvaluatePermissions="0"/>
        <Var DatabaseID="PlayerContent"/>
        <!-- <Var AllowDuplicateIDs="True"/ -->
    </List>
</List>
<List Name="GUIDRegistrationPrefixes">
    <List Name="PlayerContentRegistration">
        <Var GUIDRegistrationPrefix="register"/>
        <Var DatabaseID="PlayerContent"/>
    </List>
</List>
<!-- D A T A B A S E S -->
<List Name="Databases">
    <List Name="Admin_Basic">
        <Var PluginID="rn-db-flatfile"/>
        <Var Path="/hsphere/shared/RealServer/adm_b_db"/>
    </List>
    <List Name="Encoder_RN5">
        <Var PluginID="rn-db-flatfile"/>
        <Var Path="/hsphere/shared/RealServer/enc_r_db"/>
    </List>
    <List Name="Content_RN5">
        <Var PluginID="rn-db-flatfile"/>
        <Var Path="/hsphere/shared/RealServer/con_r_db"/>
    </List>
    <List Name="PlayerContent">
        <Var PluginID="rn-db-flatfile"/>
        <Var Path="/hsphere/shared/RealServer/con_p_db"/>
    </List>
</List>
<!-- V I E W S O U R C E -->
<List Name="ViewSourceConfiguration">
    <Var ViewSourceLongName="View Source Tag FileSystem"/>
    <List Name="/">
        <Var AllowViewSource="1"/>
        <Var HidePaths="1"/>
    </List>
</List>

```

```

</List>
<!-- C O N T E N T B R O W S I N I G -->
<List Name="ContentBrowsing">
  <List Name="BrowsableMountPoints">
    <Var Mount_1="/"/>
    <Var Mount_2="/shiva"/>
  </List>
  <List Name="IndexExtensions">
    <Var Ext_1="*" />
  </List>
</List>
<!-- F I L E S Y S T E M S -->
<!-- ----- -->
<List Name="FSMount">
  <!-- Local File System; Media -->
  <List Name="RealSystem Content">
    <Var ShortName="pn-local"/>
    <Var MountPoint="/"/>
    <Var BasePath="/hsphere/shared/RealServer/Content"/>
  </List>
  <!-- Local File System; Secure Media -->
  <List Name="RealSystem Secure Content">
    <Var ShortName="pn-local"/>
    <Var MountPoint="/secure"/>
    <Var BasePath="/hsphere/shared/RealServer/Secure"/>
  </List>
  <!-- Local File System; HTML -->
  <List Name="RealSystem Administrator HTML">
    <Var ShortName="pn-local"/>
    <Var MountPoint="/admin/html"/>
    <Var
BasePath="/hsphere/shared/RealServer/RealAdministrator"/>
  </List>
  <!-- Local File System; DOCS -->
  <List Name="RealSystem Administrator DOCS">
    <Var ShortName="pn-local"/>
    <Var MountPoint="/admin/Docs"/>
    <Var
BasePath="/hsphere/shared/RealServer/RealAdministrator/Docs"/>
  </List>
  <!-- Local File System; IMAGES -->
  <List Name="RealSystem Administrator IMAGES">
    <Var ShortName="pn-local"/> <Var
MountPoint="/admin/images"/>
    <Var
BasePath="/hsphere/shared/RealServer/RealAdministrator/images"/>
  </List>
  <!-- Local File System; JAVAMONITOR -->
  <List Name="RealSystem Administrator JAVAMONITOR">
    <Var ShortName="pn-local"/>
    <Var MountPoint="/admin/JavaMonitor"/>
    <Var
BasePath="/hsphere/shared/RealServer/RealAdministrator/JavaMonitor"/>
  </List>
  <!-- XML Tag Handler File System -->
  <List Name="Real System Administrator SSI">
    <Var ShortName="pn-xmltag"/>
    <Var MountPoint="/admin/includes"/>
    <Var BaseMountPoint="/admin/html"/>
    <List Name="TagHandlers">

```

```

        <Var h1="pn-includer"/>
        <Var h2="pn-vsrtaghdlr"/>
    </List>
</List>
<!-- Admin File System -->
<List Name="RealSystem Administrator Files">
    <Var ShortName="pn-admin"/>
    <Var MountPoint="/admin/">
    <Var BaseMountPoint="/admin/includes/">
    <Var Realm="ultra.shiva.AdminRealm"/>
</List>
<!-- Splitter Broadcast -->
<List Name="Splitter_DoubleURL">
    <Var ShortName="pn-splitter"/>
    <Var MountPoint="/split/">
    <Var Port="3030"/>
</List>
<!-- G2 Encoders -->
<List Name="RealSystem G2 Encoders">
    <Var ShortName="pn-encoder"/>
    <Var MountPoint="/encoder/">
    <Var Port="4040"/>
    <Var EncoderRealm="ultra.shiva.EncoderRealm"/>
</List>
<!-- Pre-G2 Encoders -->
<List Name="Pre-RealSystem G2 Encoders">
    <Var ShortName="pn-live3"/>
    <Var MountPoint="/live/">
    <Var Port="5050"/>
    <!-- Var Password="123456"/ -->
</List>
<!-- RAM File Generator -->
<List Name="RAM File Generator">
    <Var ShortName="pn-ramgen"/>
    <Var MountPoint="/ramgen/">
</List>
<!-- View Source File system -->
<List Name="View Source File System">
    <Var ShortName="pn-vsrfcfsys"/>
    <Var MountPoint="/vsrfcfsys/">
</List>
<!-- View Source Tag File System; Source Insertion -->
<List Name="View Source Tag FileSystem">
    <Var ShortName="pn-xmltag"/>
    <Var MountPoint="/viewsource/">
    <Var BaseMountPoint="/vsrfcfsys/">
    <List Name="TagHandlers">
        <List Name="ViewSource Tag Handler">
            <Var ShortName="pn-vsrtaghdlr"/>
        </List>
    </List>
</List>
<!-- General Ad Insertion -->
<List Name="General Ad Insertion">
    <Var ShortName="pn-xmltag"/>
    <Var MountPoint="/adtag/general/">
    <Var BaseMountPoint="/">
    <List Name="TagHandlers">
        <List Name="Ad Tag Replacement Plugin">
            <Var ShortName="rn-adtaghandler"/>
        </List>
    </List>
</List>

```

```

        <Var AdRetrievalMountPoint="/httpfs/" />
        <Var AdPlaybackMountPoint="/httpfs/" />
        <Var
AdURL="http://www.real.com/ads/g2ads_def.html" />
        <Var Rotate="0" /> <Var Bitrate="4000" />
        <Var Interval="30" /> <Var
RotationMountPoint="/shellfs/" />
    </List>
</List>
</List>
<!-- Banner Ad SMIL Generation -->
<List Name="Banner Ad SMIL Generation">
    <Var ShortName="pn-smilgen" />
    <Var MountPoint="/smilgen/banner/" />
    <Var BaseMountPoint="/" />
    <Var Layout="AdBottom" />
    <Var OuterPadding="5" />
    <Var InnerPadding="5" />
    <Var BGColor="black" />
    <Var AdType="Banner" />
    <Var EnablePlaylist="0" />
    <Var AdWidth="468" />
    <Var AdHeight="60" />
</List>
<!-- Lead-in Ad SMIL Generation -->
<List Name="Lead-in Ad SMIL Generation">
    <Var ShortName="pn-smilgen" />
    <Var MountPoint="/smilgen/leadin/" />
    <Var BaseMountPoint="/" />
    <Var Layout="AdCenter" />
    <Var OuterPadding="5" />
    <Var InnerPadding="5" />
    <Var BGColor="black" />
    <Var AdType="Leadin" />
    <Var EnablePlaylist="0" />
    <Var AdWidth="468" />
    <Var AdHeight="60" />
</List>
<!-- Continuous Rotating Banner Ad SMIL Generation -->
<List Name="Continuous Rotating Banner Ad SMIL Generation">
    <Var ShortName="pn-smilgen" />
    <Var MountPoint="/smilgen/rbanner/" />
    <Var BaseMountPoint="/" />
    <Var Layout="AdBottom" />
    <Var OuterPadding="5" />
    <Var InnerPadding="5" />
    <Var BGColor="black" />
    <Var AdType="RotatingBanner" />
    <Var EnablePlaylist="0" />
    <Var AdWidth="468" />
    <Var AdHeight="60" />
</List>
<!-- HTTP File System -->
<List Name="HTTP File System">
    <Var ShortName="pn-http" />
    <Var MountPoint="/httpfs/" />
    <Var ConnectionTimeout="10" />
    <Var ServerTimeout="10" />
    <Var MangleCookies="0" />
</List>

```

```

<!-- RealSystem Shell File System -->
<List Name="RealSystem Shell File System">
    <Var ShortName="pn-shell"/>
    <Var MountPoint="/shellfs"/>
    <Var AdRetrievalMountPoint="/httpfs"/>
    <Var AdPlaybackMountPoint="/httpfs"/>
</List>
<List Name="Users">
<Var MountPoint="/shiva"/>
    <Var BasePath="/hsphere/local/real/home"/>
    <Var ShortName="pn-local"/>
</List>
</List>
<!-- C A C H I N G -->
<Var TSPort="7802"/>
<Var TSEnable="1"/>
<Var TSLog="1"/>
<Var TSLogPath="/hsphere/shared/RealServer/Logs/cache.log"/>
<!-- M U L T I C A S T -->
<List Name="Multicast">
    <List Name="ControlList">
        <List Name="100">
            <Var Allow="Any"/>
        </List>
    </List>
    <Var RTSPPort="554"/>
    <Var PNAPort="7070"/>
    <Var DeliveryOnly="0"/>
    <Var Resend="1"/>
    <Var TTL="16"/>
</List>
<List Name="MediaExportInterface">
    <Var LogFile="/hsphere/shared/RealServer/Logs/cache.log"/>
    <Var LoggingEnabled="1"/>
    <Var TransferSize="2048"/>
    <Var Enabled="1"/>
    <Var ListenPort="7878"/>
    <Var ChainingID="007b4603"/>
    <Var Tracemask="0x0"/>
    <Var LogFormat="MEI1"/>
    <Var Timeout="120"/>
</List>
<Var CloakingHint="1"/>
<Var Capacity="10000"/>
<Var PlusOnly="0"/>
<Var MaxBandwidth="0"/>
<Var User="%-1"/>
<Var RTSPMessageDebug="0"/>
<Var LiveFileBandwidthNegotiation="0"/>
<Var MonitorConnections="4"/>
<Var Group="%-1"/>
<Var MinPlayerProtocol="0"/>
<Var ClientConnections="0"/>
<List Name="ISPHosting">
    <List Name="TranslationMounts">
        <List Name="users">
            <Var UserPath="/shiva"/>
            <Var MountPoint="/shiva"/>
        </List>
    </List>
</List>

```



```
<List Name="UserLists">  
    <Var File_2="/hsphere/local/config/RealServer/user.list"/>  
</List>  
</List>
```